PHOTOFACT® Folder

INDEX

A cumulative index is included as a part of this Folder. Upon finding that a new tube is not listed on the roll chart of a tester covered in this service, refer to the latest Tube Tester Data Index to determine in which PHOTOFACT Set the data was published. If listed, reference to that Folder will provide the necessary data.

TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.	TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.	TUBE TYPES	JACKSON 598, 648, and 658 See PHOTOFACT Set No.
2CW4♦	544	6D10♦	552†	10BQ5	552
2EV5	512	6DA4	552†	10EM7	532
2FQ5	524	6DX8	552	10HF8	536
2FS5	552	6EQ7	516	12BZ6	524†
2FY5	512	6ES8	524†	12DY8	516
2GK5	548	6ET7	544	12EQ7	552
3AW3	548	6FA7	524	12GW6	528
3ES5	524	6FG7	552	13EM7	512
3EV5	512	6FJ7♦	548	14JG8	552
4AV6	532	6FQ5	512	15EA7	528
4ES8	524	6FQ7	532	17DM4	532
4GS8	516	6FS5	520	17GW6	528
5DJ4	528	6FW5	520	19EZ8	524
5EW6	536	6FY5	552†	19HV8	536
5FG7	544	6GK5	544	20EZ7	548
6AJ8	524†	6GW6	528	25DK4	540
6AL3	524	6GW8	528	34GD5	508
6AX3♦	548	6GX6	532	35HB8	548
6B10♦	552	6GY6	536	50FK5	536
6C10♦	548	6HF8	532	VR75	524†
6CB5	524†	6HG8	528	7233	540
6CB6	524†	6HJ8	516	7586♦	548
6CD6	524†	6HS8	524	7587♦	548
6CD7	512	6JC8	544	7695	512
6CQ4	528	6K11♦	544	7701	520
6CW4♦	544	8ET7	516	7716	520
6D10♦	544	8FQ7	536	7895♦	548

† See correction notice.

♦ These types can only be tested on 648S, 658A, 648 converted with 648 SM kit, and 658 converted with 658 SM kit.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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TUBE TESTER DATA • SET 552

JACKSON MODEL 598

SET 552

SUPPLEMENTS LATEST ROLL CHART 598-3

Tube Type	A.	B.	Fil. C.	Cont.	D.	E.	F.	G.
2FS5	2.5	3Y	7	4	5	1	6	54
6DX8	6.3	4Y		5	6	8	9	34
	"	4			2	1		25
6FG7	6.3	4Y	8	5	6	9	7	45
	"	4Y	8		2	1		35
10BQ5	10.5	4	168	5	7	2	9	18
12EQ7	12.6	4Z		5	7	2	6	41
	"	4	Z		8			56
14JG8	15.	4		5	9	8		51
	"	4			2	Z		54
	"	4			6	Z		54

JACKSON MODEL 648

SET 552

SUPPLEMENTS LATEST ROLL CHART 648-25

Tube Type	Fil.	D.	E.	Plate Test
2FS5	2.5	A234	AC156	53 V
6B10♦	6.3	C6	0	58 X
	Nor.—S switch in S position			
	6.3	C6	7	58 X
	"	C5	A49	13 WY
	"	C1	AC23	13 WY
6DX8	6.3	A127	C689*	13 WY
	"	123	AC45	11 WY
6FG7	6.3	A126	AC389*	28 XZ
	"	A123	AC45	43 V
10BQ5	10.5	123	B569	15 WZ
12EQ7	12.6	1234	B589	39 V
	"	123	7	95 X
14JG8	15.	129	A67	12 WX
	"	123	5	56 X
	"	124	8	56 X

♦ These types can only be tested on 648S or 648R converted with 648 SM kit.

CORRECTION NOTICE ON ROLL CHART 648-25 FOR MODEL 648

Tube Type	Fil.	D.	E.	Plate Test
6DA4	6.3	234	6	15 W
6D10♦	6.3	AC3	AC67	32 YZ
	"	AC4	AC59	32 YZ
	"	AC2	A18	32 YZ
6FY5	6.3	A234	A57	17 XZ

JACKSON MODEL 658

SET 552

SUPPLEMENTS LATEST ROLL CHART 658-5

Tube Type	Sec.	Heater	Circuit H-K	P-G	Plate	Grid Test	Heater Current
2FS5	P	2.5M	124	ac356	62R	5WY•	A10.6J Z600
6B10♦	T	6.4K	C5	a49	16Q	30WY•	
	T	"	C1	ac23	"	30WY•	
	D	"	C6	7	57U	X	
	D	"	"	0	"	X	A13.6H Z600
6DX8	P	6.4K	129	ab678	50Q	20VY•	
	T	"	123	ac45	35Q	10WY•	
6FG7	P	6.4J	123	ac689	44R	15WY•	
	T	"	"	ac45	26R	10WY•	A10.6N Z450
10BQ5	P	10.6M	123	b569	25Q	30VY•	A18.6E Z450
12EQ7	P	13.6E	1234	b589	34S	15XY•	
	D	"	123	7	95S	X	
14JG8	T	13.6M	129	a67	27Q	5XY•	
	D	"	123	5	54Q	X	
	D	"	124	8	"	X	

♦ These types can only be tested on 658A or 658 converted with 658 SM kit.

The PHOTOFACT® Servicer

SET 552 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ OCT. 1961

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PRODUCTION CHANGE BULLETIN	
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HE-15A	552-3
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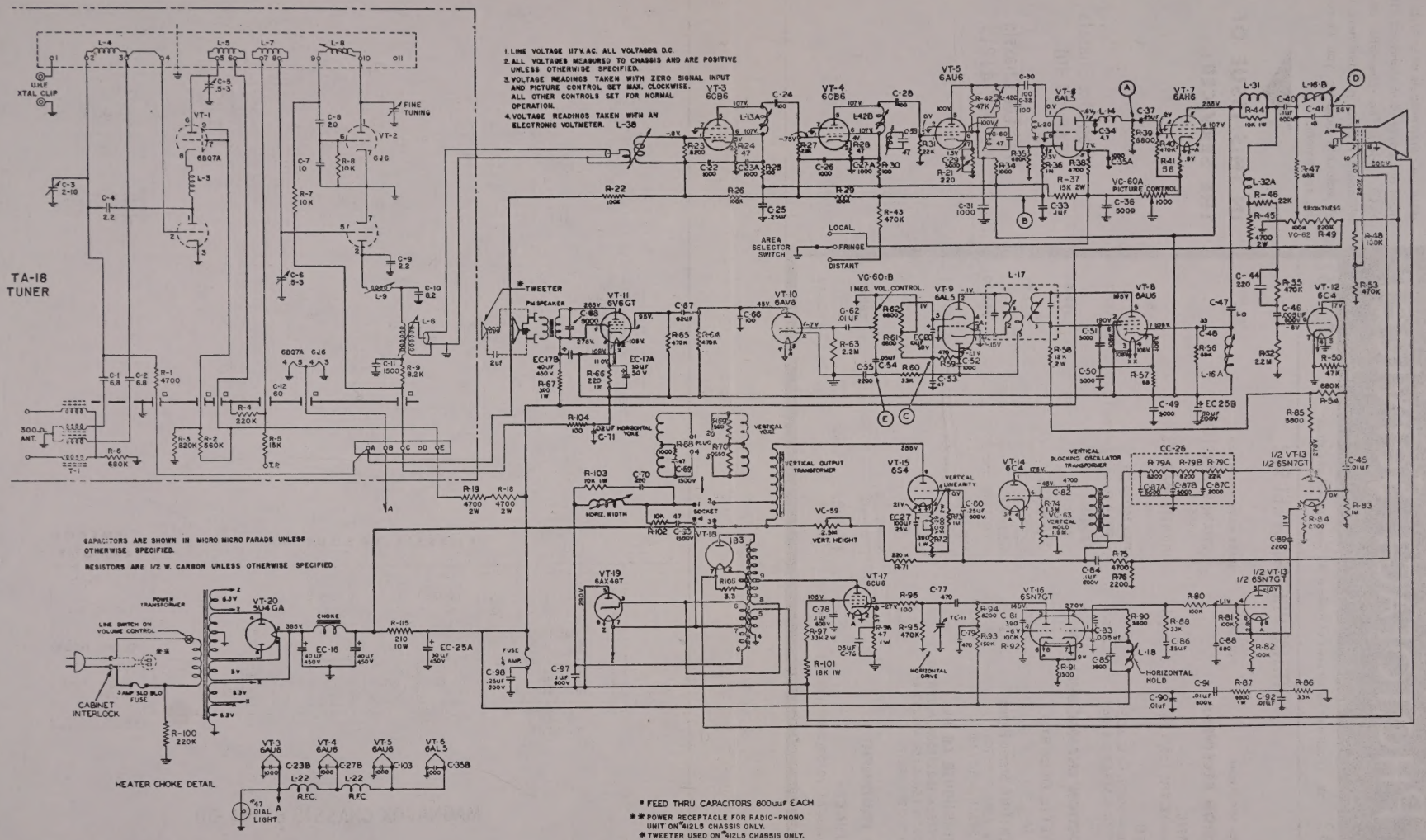
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

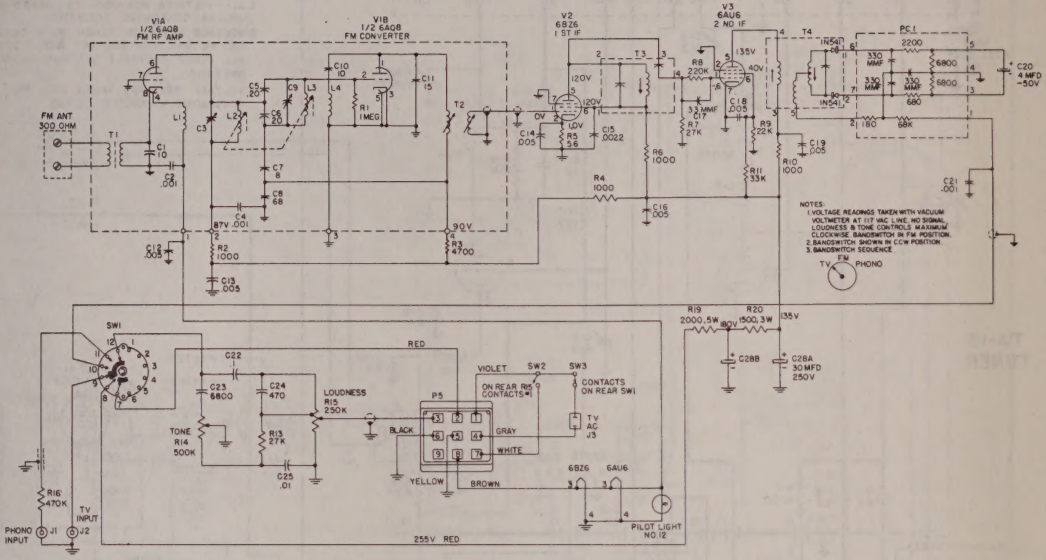
Magnavox Chassis
68-04-00

Trav-Ler Chassis
412K5, 412L5

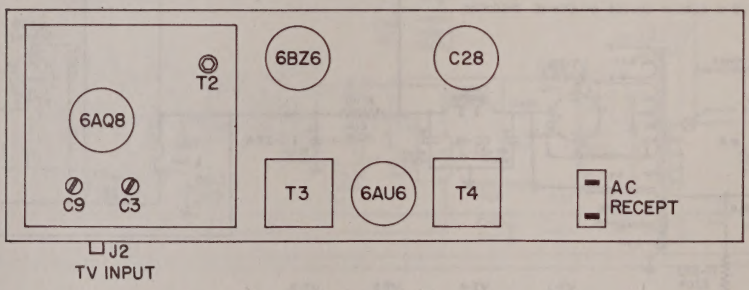

TA-18 TUNER
1. LINE VOLTAGE 117 V. AC. ALL VOLTAGES D.C.
2. ALL VOLTAGES MEASURED TO CHASSIS AND ARE POSITIVE UNLESS OTHERWISE SPECIFIED.
3. VOLTAGE READINGS TAKEN WITH ZERO SIGNAL INPUT AND PICTURE CONTROL SET MAX. CLOCKWISE. ALL OTHER CONTROLS SET FOR NORMAL OPERATION.
4. VOLTAGE READINGS TAKEN WITH AN ELECTRONIC VOLTMETER. L-38
CAPACITORS ARE SHOWN IN MICRO MICRO FARADS UNLESS OTHERWISE SPECIFIED.
RESISTORS ARE 1/2 W. CARBON UNLESS OTHERWISE SPECIFIED
HEATER CHOKE DETAIL
* FEED THRU CAPACITORS 800uuf EACH
** POWER RECEPTACLE FOR RADIO-PHONO UNIT ON 412L5 CHASSIS ONLY.
* TWEETER USED ON 412L5 CHASSIS ONLY.

TRAV-LER CHASSIS 412K5, 412L5

Schematic Diagram Courtesy of Trav-Ler Radio Corporation



CHASSIS LAYOUT



CONTROL LAYOUT

MAGNAVOX CHASSIS 68-04-00

Schematic Diagram Courtesy of The Magnavox Company

PHOTOFACT® Folder with CIRCUITRACE®

OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

MODEL KE371

OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

MODEL KE371

TRADE NAME	OLYMPIC	Models	TV Chassis	Radio Chassis	VHF Tuner	VHF-UHF Tuner
		CE348, CE349, TE333	KE		CL27160	
		CE348U, CE349U, TE333U	KEU			CL26405
		KE371, KE372	KE	158 or 159 or 160	CL27160	
		KE371U, KE372U	KEU	158 or 159 or 160		CL26405

MANUFACTURER — Olympic Radio & Television Inc., Division of the Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.

TYPE SET — Television Receiver. Some Models With AM or FM-AM Radio (With Stereo Amp.) and 4 Speed Automatic Record Changer *

TUBES — TV: VHF-Sixteen AM Radio 158: Five FM-AM Radio 159: Seven FM-AM Radio 160: Ten

POWER SUPPLY — 105-120 Volts AC, 60 Cycle RATING TV: VHF-190 Watts, 1.75 Amp. @ 117 Volts AC
FM-AM Radio 160: 100 Watts, 1.0 Amp. @ 117 Volts AC
(Selector Switch in FM, AM, or Phono pos., less Phono Motor)

TUNING RANGE — TV: Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)
FM-AM Radio 159: BC - 535 to 1700KC (455KC IF) FM - 87 to 109MC (10.7MC IF)
FM-AM Radio 160: BC - 540 to 1620KC (455KC IF) FM - 87.5 to 108.5MC (10.7MC IF)
AM Radio 158: 540 to 1620KC (455KC IF)

* FOR SERVICE INFORMATION ON RECORD CHANGER #RX26202-6 - SEE SIMILAR UNIT - PHOTOFACT SET 465 FOLDER 6

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

Two fuse wires (one for Fil., one for LV supply) and a ½ Amp. (B+) fuse are used for receiver protection. For fuse location, see "Tube Placement Chart". For fuse wire location, see M2 (LV supply) and M3 (Fil.) in photo "Chassis-Bottom View", page 6.

TUNER OSCILLATOR ADJUSTMENTS

To touch up VHF Oscillator, remove Channel Selector knob, Fine Tuning knob, and 1 screw holding upper panel. See "VHF Tuner Alignment" for complete Oscillator Adjustments page 23.

AGC

The AGC may be varied by means of an AGC Stabilizer Control. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE (SIZE)

The horizontal drive (size) may be adjusted by a Trimmer (B2). (See "Cabinet - Rear View").

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Sound Clarifier (Quad. Coil Slug) for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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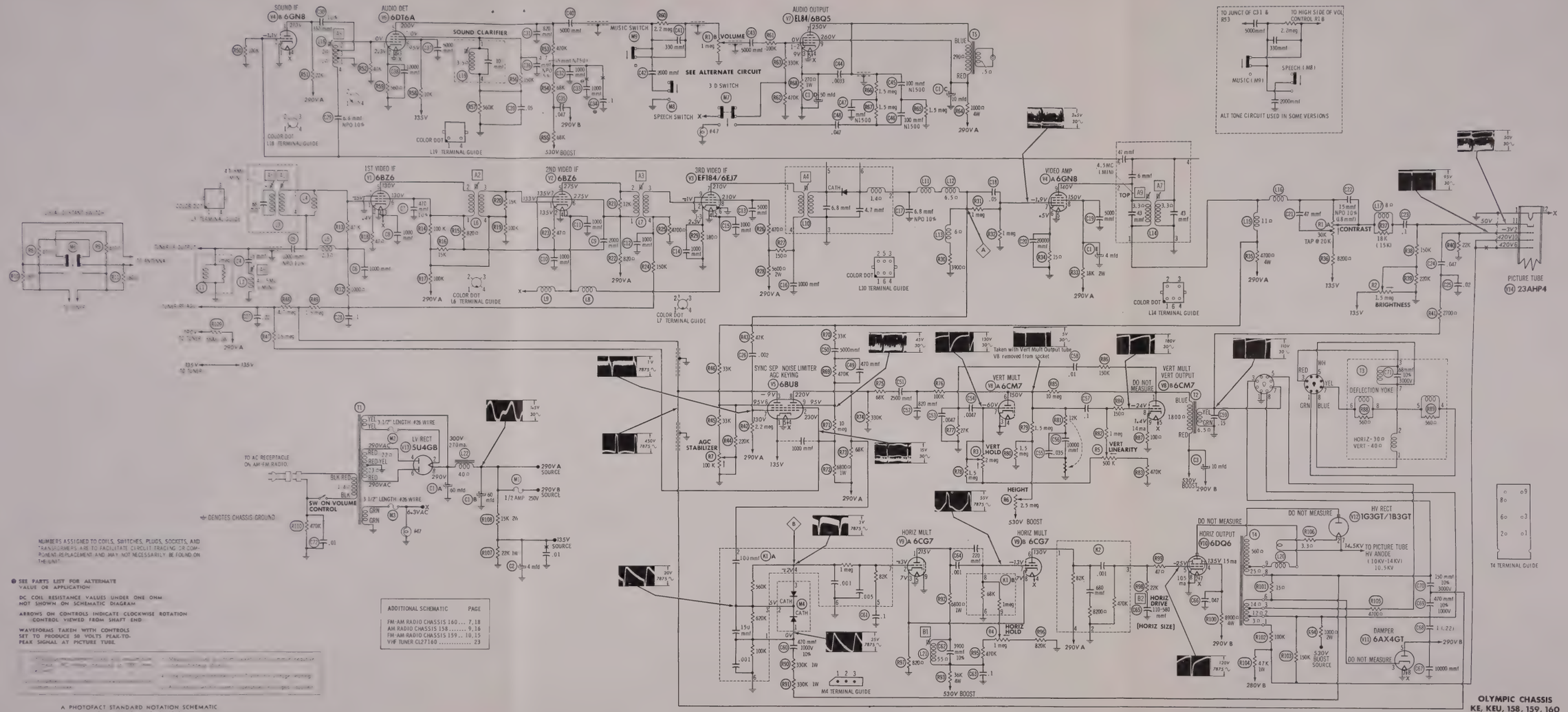
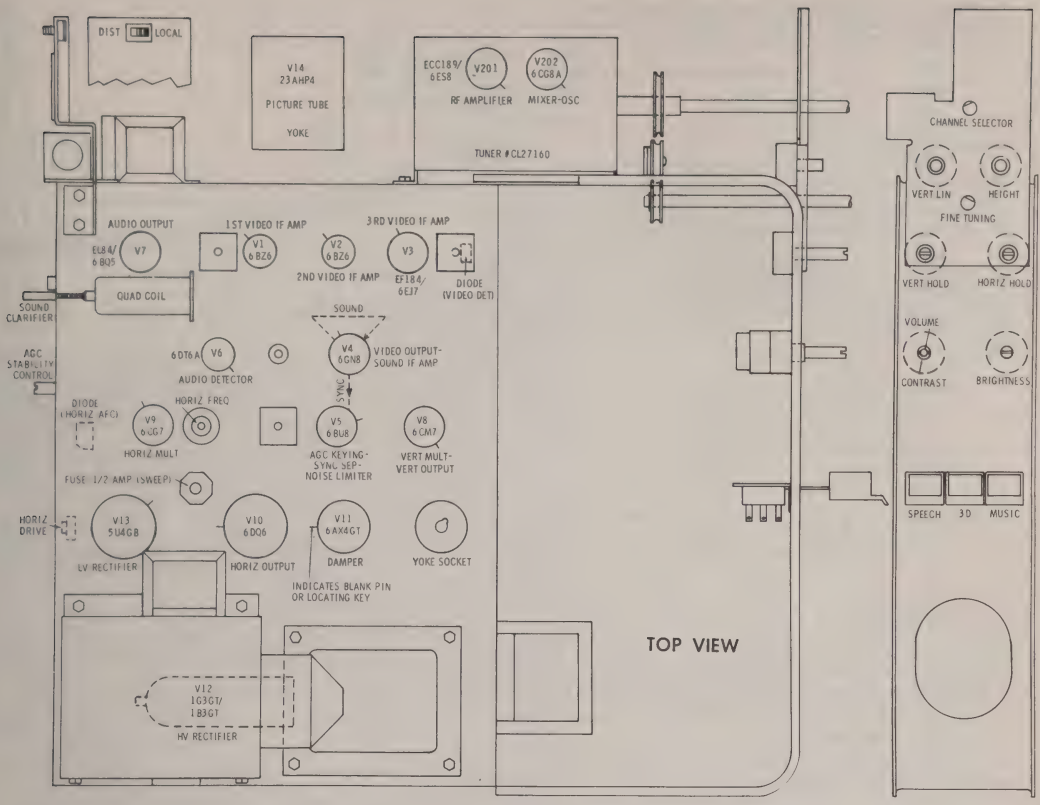
OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

SET 552 FOLDER 1


SOUND IF V4 6GN8
AUDIO DET V5 6DT6A
SOUND CLARIFIER
MUSIC SWITCH
VOLUME
SEE ALTERNATE CIRCUIT
3 D SWITCH
SPEECH SWITCH
AUDIO OUTPUT V7 EL84/6BQ5
BLUE
RED
530V BOOST
ALT TONE CIRCUIT USED IN SOME VERSIONS
TO JUNCT OF C31 & R53
TO HIGH SIDE OF VOL CONTROL R18
SPEECH (M8)
MUSIC (M9)
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 EF184/6EJ7
VIDEO AMP V4 A 6GN8
4.5MC (MIN)
TOP
CONTRAST
BRIGHTNESS
PICTURE TUBE V14 23AHP4
TUNER RF AGC
TO ANTENNA
TUNER IF AGC
TUNER B+
COLOR DOT L8 TERMINAL GUIDE
COLOR DOT L9 TERMINAL GUIDE
COLOR DOT L6 TERMINAL GUIDE
COLOR DOT L7 TERMINAL GUIDE
COLOR DOT L10 TERMINAL GUIDE
COLOR DOT L14 TERMINAL GUIDE
SYNC SEP. NOISE LIMITER AGC KEYING V5 6BU8
AGC STABILIZER
VERT MULT V8 A 6CM7
VERT MULT V8 B 6CM7
VERT HOLD
VERT LINEARITY
DO NOT MEASURE
VERT MULT VERT OUTPUT V8 B 6CM7
Taken with Vert Mult Output Tube V8 removed from socket
DEFLECTION YOKE
HORIZ-30Ω VERT-40Ω
HEIGHT
HORIZ MULT V9 A 6CG7
HORIZ MULT V9 B 6CG7
HORIZ HOLD
HORIZ OUTPUT V10 6DQ6
HORIZ DRIVE
(HORIZ SIZE)
HV RECT V12 1G3GT/1B3GT
14.5KV TO PICTURE TUBE
HV ANODE (10KV-14KV) 10.5KV
DAMPER V11 6AX4GT
530V BOOST SOURCE
T4 TERMINAL GUIDE
M4 TERMINAL GUIDE
LV RECT V13 5U4GB
300V 270ma
TO AC RECEPTACLE ON AM-FM RADIO
SW ON VOLUME CONTROL
1/2 AMP 250V
290V A SOURCE
290V B SOURCE
135V SOURCE
6.3VAC
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND "TRANSFORMERS" ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
ADDITIONAL SCHEMATIC PAGE
FM-AM RADIO CHASSIS 160 ... 7, 18
AM RADIO CHASSIS 158 ... 9, 16
FM-AM RADIO CHASSIS 159 ... 10, 15
VHF TUNER CL27160 ... 23
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961
OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse Wire (LV Supply), Fuse Wire (Fil.), V13

SWEEP FAILURE
No raster, has sound Fuse (Sweep), V9, V10, V11, V12, V14
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V8
Horiz. off freq. Diode (Horiz. AFC), V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5

OLYMPIC CHASSIS
KE, KEU, 158, 159, 160

FOLDER 1

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: Al thru A7, A9 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
Mixer Plate Coil ..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547
A8 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic inpedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	Not Used	44.25MC (Unmod.)	Any non-interfering channel	Use VTVM DC probe to point (A). Common to chassis. (Across Video Det. Load.)	Mixer Plate Coil & Al	Adjust for maximum deflection.
2.	"	"	42.75MC	"	"	A2	"
3.	"	"	45.5MC	"	"	A3	"
4.	"	"	42.25MC	"	"	A4	"
5.	"	"	47.5MC	"	"	A5, A6	Adjust for MINIMUM deflection.
6.	"	44MC (10MC Swp.)	42.25MC 45.5MC	"	Vert. Amp. thru 27K to point (A). Low side to chassis. (Across Video Det. Load.)		Check for response similar to Fig. 1. If necessary, retouch Al thru A4 and Mixer Plate Coil to obtain desired response.

SOUND IF ALIGNMENT

Turn the set on and tune in a strong TV signal.. Adjust the Sound Clarifier for maximum volume. Disconnect the antenna and if necessary, insert an attenuator in series with the antenna to provide a weak signal. Adjust A7 and A8 for maximum volume. (A weak signal is necessary to make the peaks distinguishable). Reconnect the antenna directly for a strong signal and retouch the Sound Clarifier for maximum undistorted sound.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible.
Adjust A9 for MINIMUM beat interference.

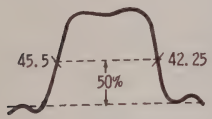
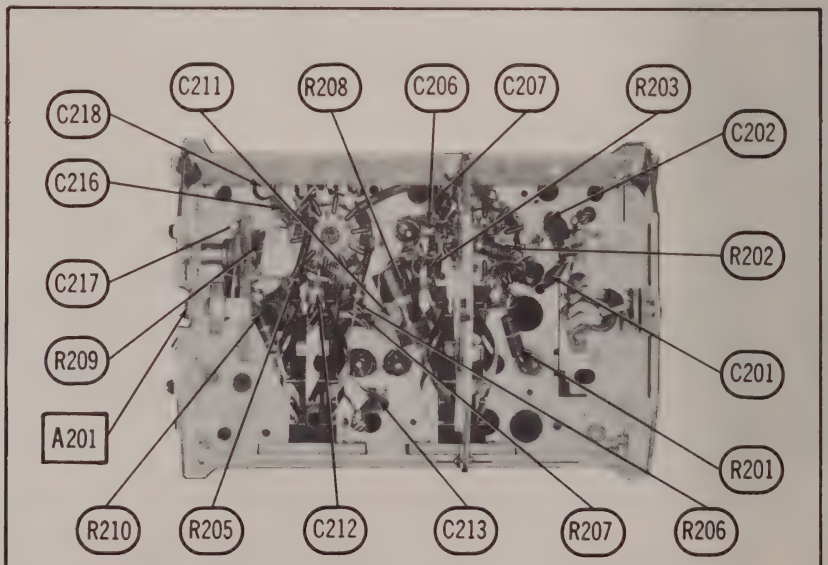
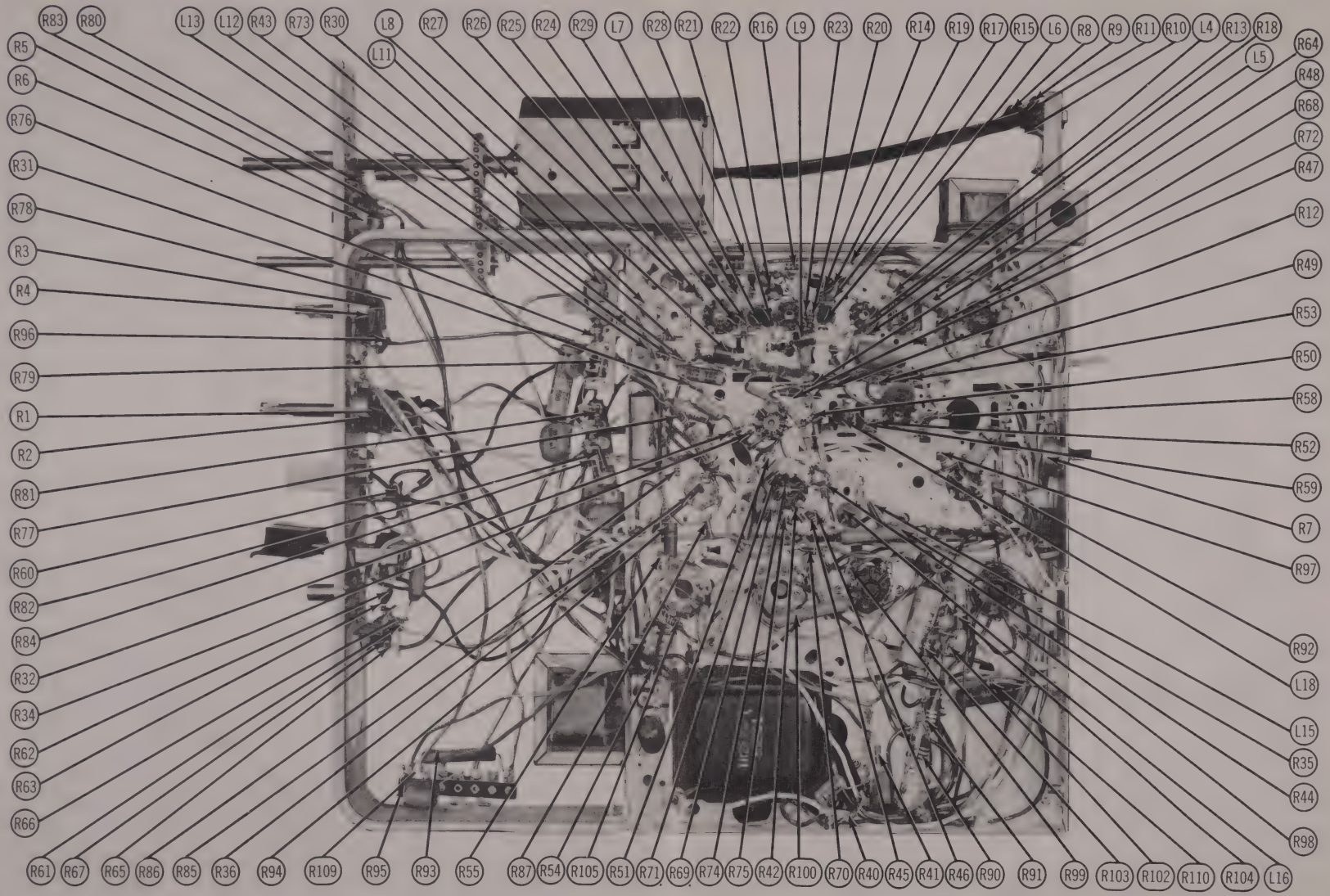


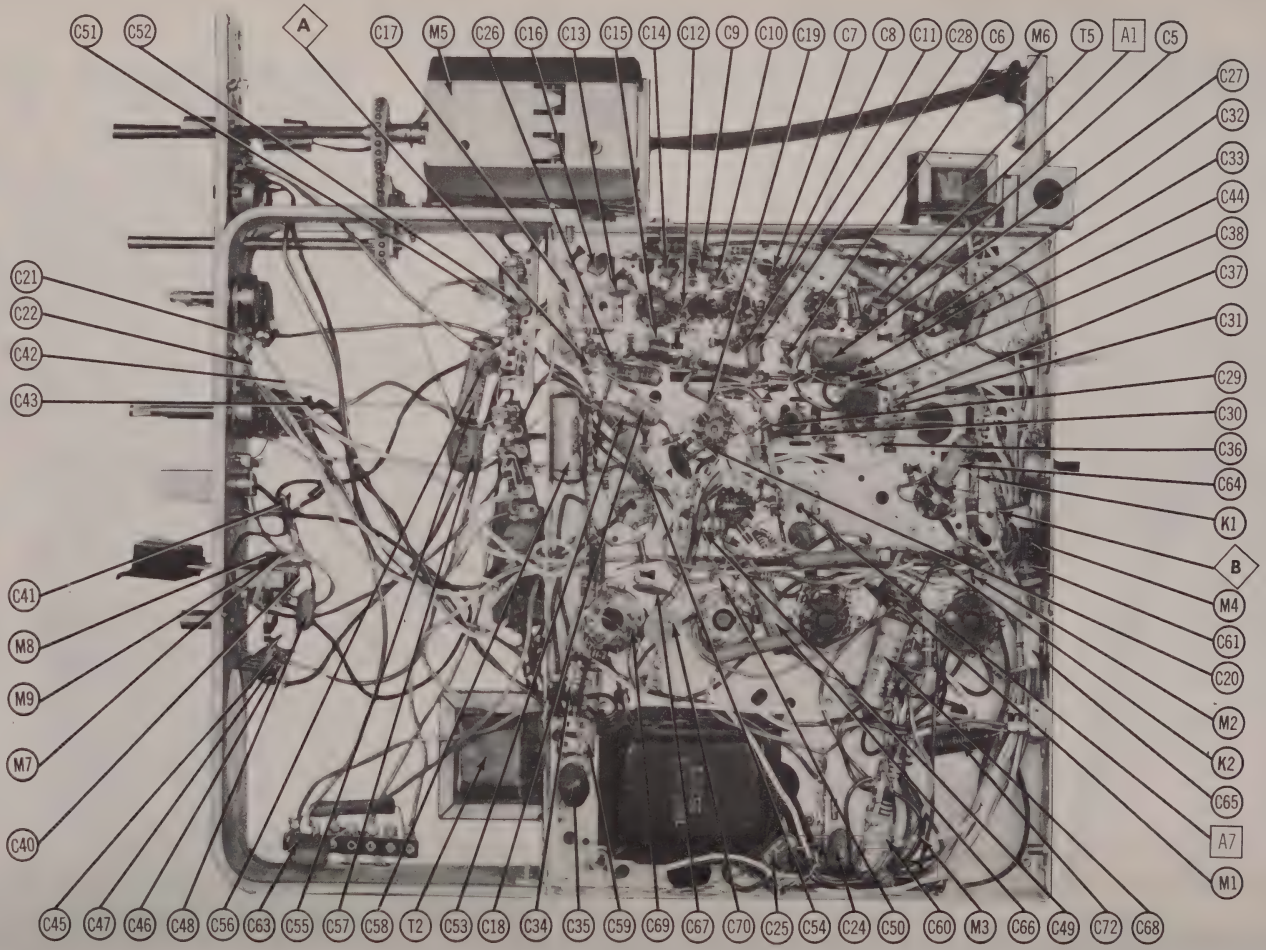
FIG.1



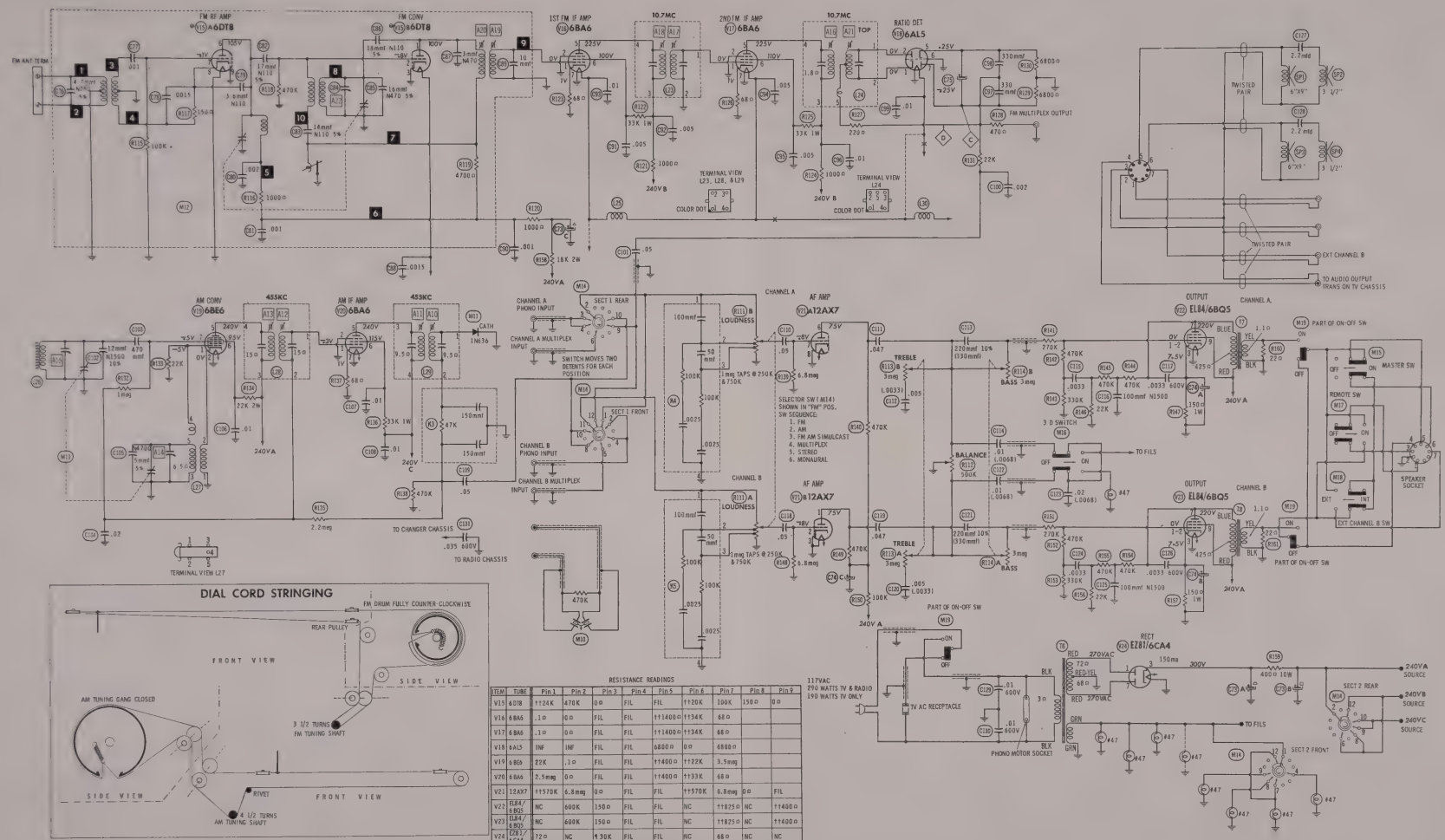
VHF TUNER CL27160 - BOTTOM VIEW



TV CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.



TV CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR, MISC., TRANSFORMER IDENT.



DIAL CORD STRINGING

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V15	6DT8	††24K	470K	0Ω	FIL	FIL	††20K	100K	150Ω	0Ω
V16	6BA6	.1Ω	0Ω	FIL	FIL	††400Ω	††34K	68Ω		
V17	6BA6	.1Ω	0Ω	FIL	FIL	††400Ω	††34K	68Ω		
V18	6AL5	INF	INF	FIL	FIL	6800Ω	0Ω	6800Ω		
V19	6BE6	22K	.1Ω	FIL	FIL	††400Ω	††22K	3.5meg		
V20	6BA6	2.5meg	0Ω	FIL	FIL	††400Ω	††33K	68Ω		
V21	12AX7	††570K	6.8meg	0Ω	FIL	FIL	††570K	6.8meg	0Ω	FIL
V22	EL84/6BQ5	NC	600K	150Ω	FIL	FIL	NC	††825Ω	NC	††400Ω
V23	EL84/6BQ5	NC	600K	150Ω	FIL	FIL	NC	††825Ω	NC	††400Ω
V24	EZ81/6CA4	72Ω	NC	¶30K	FIL	FIL	NC	68Ω	NC	NC

ALL MEASUREMENTS ON RADIO CHASSIS MADE IN "SIMULCAST" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 3 OF V24. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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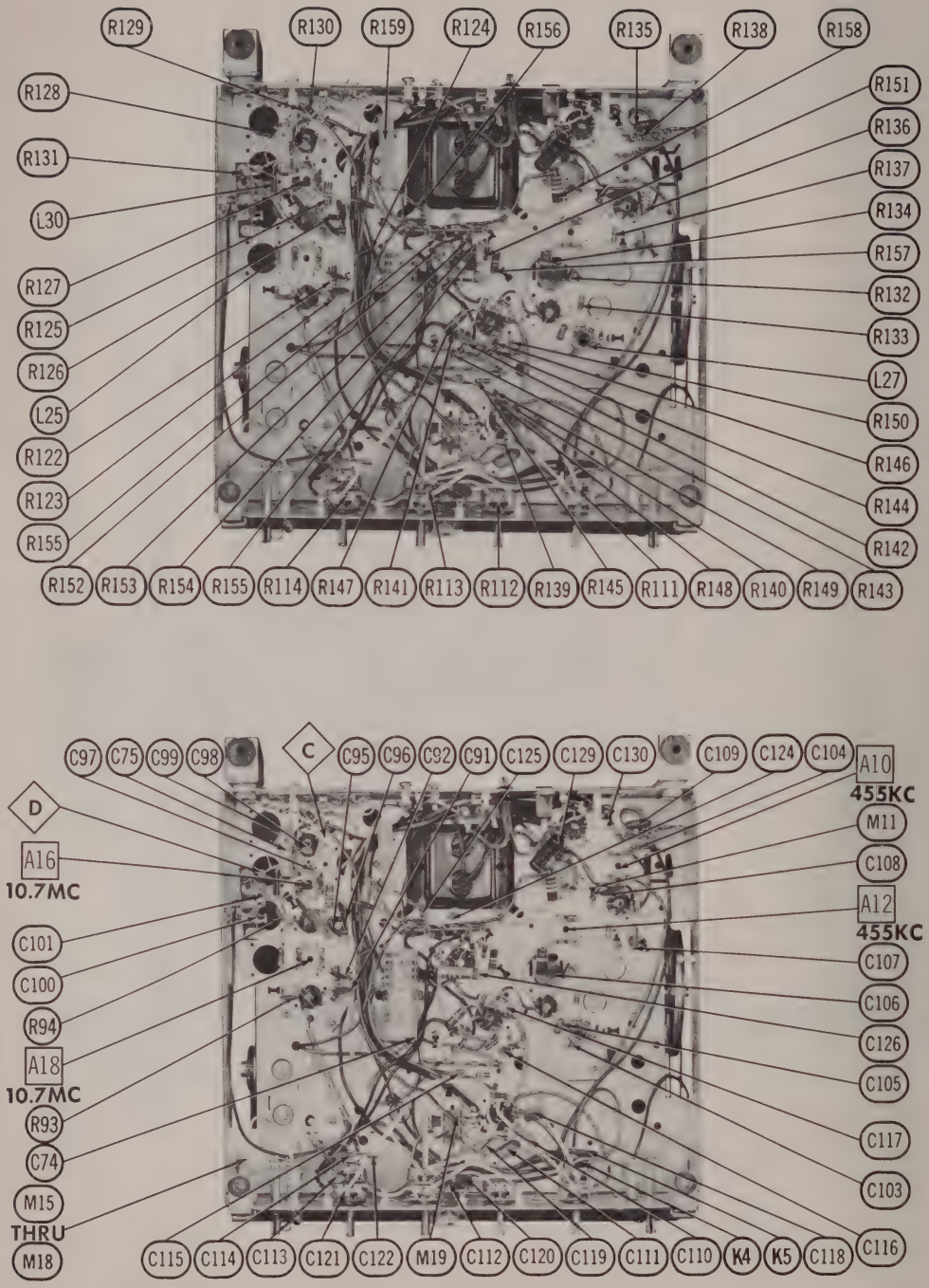
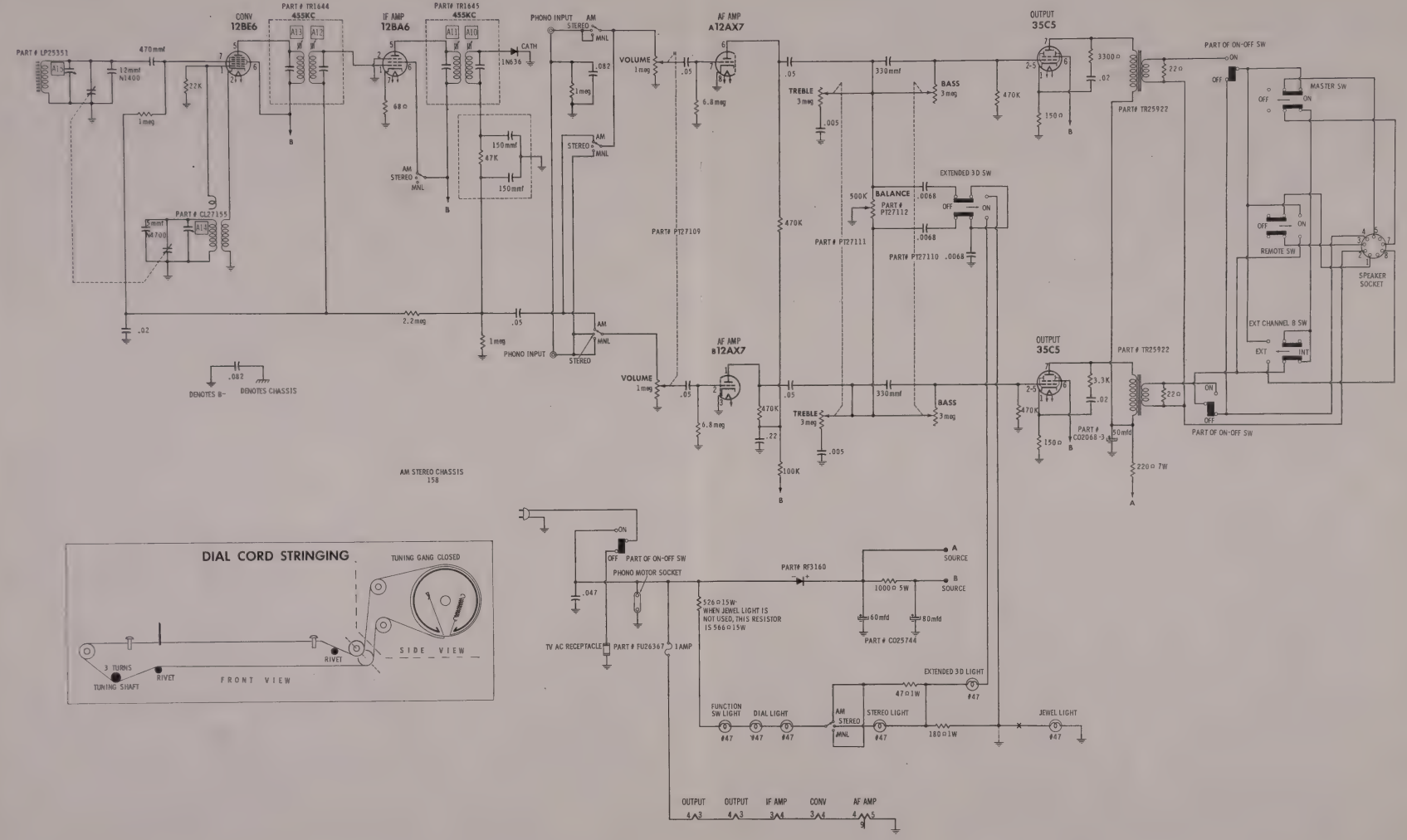
FM-AM RADIO CHASSIS 160



FM-AM RADIO CHASSIS 160 - BOTTOM VIEW



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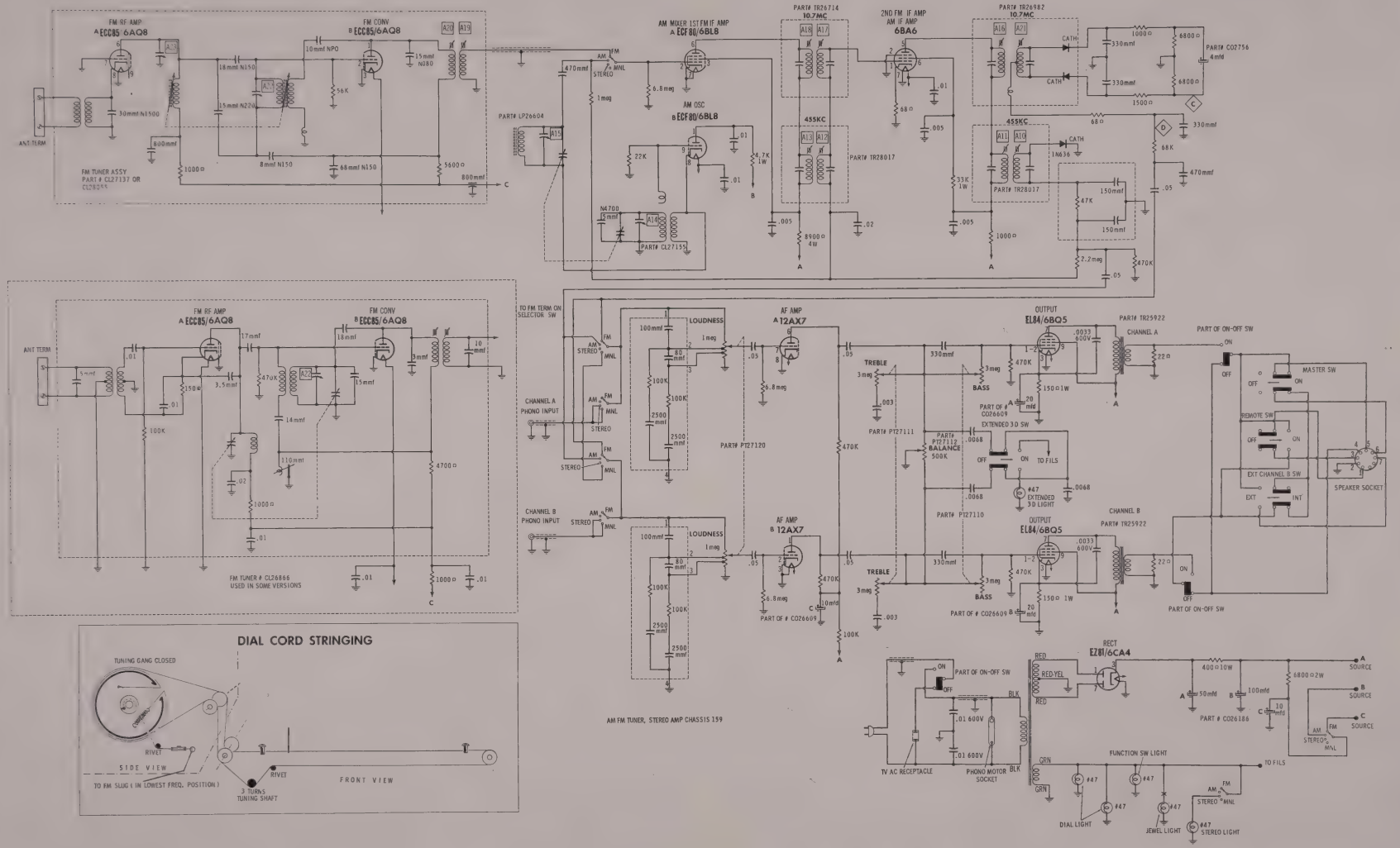
AM RADIO CHASSIS 158



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FM-AM RADIO CHASSIS 159

RADIO 160 PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS–IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R111A	1meg *		PT27120	BT-167				Loudness, Channel B
B	1meg *			STR-167				Loudness, Channel A
R112A	500K		PT27112	B-59	A47-500K-S	Q11-133	U50	Balance
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R113A	3meg		PT27110					Treble, Channel B
B	3meg							Treble, Channel A
R114A	3meg		PT27111	B-85			FA36A	Bass, Channel B
B	3meg			SR-85			RU36A	Bass, Channel A
C	Shaft			Not Req.			CS3500	

* Taps ② 250K and 750K.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R115	100K			
R116	1000Ω			
R117	150Ω			
R118	470K			
R119	4700Ω			
R120	1000Ω			
R121	10000Ω			
R122	33K 1W			
R123	68Ω			
R124	10000Ω			
R125	33K 1W			
R126	68Ω			
R127	3200Ω			
R128	4700Ω			
R129	68000Ω			
R130	68000Ω			
R131	22K			
R132	1meg			
R133	22K			
R134	22K 2W			
R135	2. 2meg			
R136	33K 1W			
R137	68Ω			
R138	470K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R139	6. 8meg			
R140	470K			
R141	270K			
R142	470K			
R143	330K			
R144	470K			
R145	470K			
R146	22K			
R147	150Ω 1W			
R148	6. 8meg			
R149	470K			
R150	100K			
R151	270K			
R152	470K			
R153	330K			
R154	470K			
R155	470K			
R156	22K			
R157	150Ω 1W			
R158	18K 2W			
R159	4000 10W	PW10-400	10W-SQ-400	
R160	[illegible]			
R161	22Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L23	2nd FM IF	TR27126	FM-254	1463	RTC-8599	T633	
L24	Ratio Detector	TR1646	FM-255	1465	RTC-8600	T635	
L25	FM Choke (2.2uh)	CK3445	BC-563	4606	RTC-8517	T857	
L26	Loopstick	LP26604	BC-419	705-A		T532	
L27	AM Osc.	CL27155	BC-393	69-OSC	RTC-8546	T504	
L28	1st AM IF	TR1644	BC-352	12-C1	RTC-8632	T607	
L29	2nd AM IF	TR1645	BC-353	12-C2	RTC-8633	T608	
L30	FM. Choke (2.2uh)	CK3445	BC-563	4606	RTC-8517	T857	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	117V	540VCT ③ 150A DC	6. 3V ② 5. 4A	TR27125					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI	SEC.	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	5100Ω	6-8Ω	TR25922	A-2902	A-3849	24S54	S-54X	
T8	5100Ω	6-8Ω	TR25922	A-2902	A-3849	24S54	S-54X	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP	REPLACEMENT DATA OLYMPIC PART No.	QUAM PART No.	NOTES
SP1	6" X 9"	PM	3-4Ω	SK5738-1	69A3	① May be used in some versions.
SP2	3½"	PM	3-4Ω	SK26301	3A15T24	
SP3	6" x 9"	PM	3-4Ω	SK5738-1	69A3	
SP4	3½"	PM	3-4Ω	SK26301	3A15T24	
	4"	PM	3-4Ω	SK4343 ①	4A07R	
	6"	PM	3-4Ω	SK27053 ①	6A2I	
	5"	PM	3-4Ω	SK26452 ①	5A1R	
	3½"	PM	3-4Ω	SK26020 ①	3A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
E3	AM Diode Filter	150mmf, 150mmf, 47K	PC2478-1	Aerovox PA-98 Centralab PC-51 Sprague D-2
E4	Loudness Comp. "A"	50mmf, 100mmf, .0025mfd, .0025mfd, 100K, 100K	PC25420	Centralab PC-325 Sprague TC-5
E5	Loudness Comp. "B"	50mmf, 100mmf, .0025mfd, .0025mfd, 100K, 100K	PC25420	Centralab PC-325 Sprague TC-5

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR REPLACEMENT CARTRIDGES ONLY

ITEM No.	OLYMPIC PART No. CARTRIDGE	NEEDLE*	ASTATIC PART No. CARTRIDGE	NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	NEEDLE*	SONOTONE PART No. CARTRIDGE	NEEDLE*	NOTES
M10			76TS	N8-7 * (78RPM)	26S	2504 * 2605 * (78RPM)	8TA4-S	N-8TA-S *	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M11	1N636	1N636		1N60	AM Detector

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M12	FM-Tuner	CL26866 or CL27137	Complete
M13	Tuning Cap	CV26977	AM, 2 Gang (Ant. 24-540mmf, Osc. 21-187mmf)
M14	Switch	SW27107	Function Selector (Rotary Type)
M15	Switch	SW27143-44	Master (DPDT Slide Type)
M16	Switch	SW27143-43	3D (DPDT Slide Type)
M17	Switch	SW27143-42	Remote (DPDT Slide Type)
M18	Switch	SW27143-41	Channel B (DPDT Slide Type)
M19	Switch	SW26442	Power Off-On (DPDT Slide Type)

VHF TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • USE	TYPE	ITEM No.	RAYTHEON • USE	TYPE	ITEM No.	SYLVANIA • USE	TYPE
V201	R.F Amp.	ECC189/6ES8	V202	Mixer - Osc.	6CG8A			

FIXED CAPACITORS

ITEM No.	RATING			REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	100	N2200	10%					*		
C202	30	N470	10%					*		
C203	6. 8	NPO	10%		NPO-DI 6. 8	DTZ-5R8	C10V8RC	CCTO-6R8	CNO-568	10TCC-V68
C204	1. 5	NPO	10%		NPO-DI 1. 5	DTZ-1R5	C10V15C		CNO-515	10TCC-V15
C205	.001				EF-001	MFT-1000		CCF-102	CT280A	
C206	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C207	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C208	.001				EF-001	MFT-1000		CCF-102	CT280A	
C209	.001				EF-001	MFT-1000		CCF-102	CT280A	
C210	1.5		10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C211	18		10%		DI-18	TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C212	1.5		10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C213	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C214	.001				EF-001	MFT-1000		CCF-102	CT280A	
C215	.001				EF-001	MFT-1000		CCF-102	CT280A	
C216	6. 8	NPO	10%		NPO-DI 6. 8	DTZ-5R8	C10V8RC	CCTO-6R8	CNO-568	10TCC-V68
C217	10	NPO	10%		NPO-DI 10	DTZ-100	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C218	22	N750	10%		N750-SI 22	TCN-22	C10Q22U	CCTN-220	CNT-422	10TCU-Q22
C219	.001				EF-001	MFT-1000		CCF-102	CT280A	
C220	.001				EF-001	MFT-1000		CCF-102	CT280A	
C221	.001				EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	15K			
R202	1. 5meg			
R203	1meg			
R204	6800Ω			
R205	100K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R206	1800Ω			
R207	470Ω			
R208	2700Ω 2W			
R209	15K			
R210	4700Ω			

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL	C1441	C1445	R3731	R3732	R3733	R3734	T3331	T3332	T3333	C1445	C1445
Dial Glass-Radio Simulcast	DL-28031				X	X	X	X					
Dial Glass-Radio AM	DL-28035				X	X	X	X					
Safety Glass-Grey	PP-27214				X	X	X	X					
Safety Glass-Grey	PP-27214-1		X	X					X	X	X	X	
Mask	PP-27212		X	X	X	X	X	X	X	X	X	X	
Knob-VHF Channel Selector	KN28042		X	X	X	X	X	X	X	X	X	X	
Knob-Calibrated Dial	KN28061		X		X		X		X		X		
Knob-UHF Channel Selector	KN28046			X		X		X		X		X	
Knob-Calibrated Dial	KN28269						X		X				
Knob-Fine Tuning (Small)	KN28062		X	X	X			X		X	X	X	
Knob-Fine Tuning	KN27270						X		X				*
Knob-Pull	KN27314		X	X	X	X	X	X	X	X	X	X	
Knob-Horiz. & Vert. Hold	KN28045		X	X	X	X	X	X	X	X	X	X	
Knob-Contrast	KN28059		X	X	X	X	X	X	X	X	X	X	

DESCRIPTION	PART NO.	MODEL	C1441	C1445	R3731	R3732	R3733	R3734	T3331	T3332	T3333	C1445	C1445
Knob-Brightness	KN28062		X	X	X	X	X	X	X	X	X	X	
Knob-Music, Speech, 3D	KN28062		X	X	X	X	X	X	X	X	X	X	
Knob-Tuning-Radio	KN28023				X	X	X	X					
Knob-Radio-Controls	KN28022				X	X	X	X					
Knob-Pull-Radio	KN28024				X	X	X	X					
Knob-Radio-AM-FM Simulcast	KN28026				X	X	X	X					
Knob-Radio-AM, FM	KN28027				X	X	X	X					
Knob-Radio-AM	KN28028				X	X	X	X					
Cabinet	CA28128										X	X	
Cabinet	CA28129		X	X									
Cabinet	CA28130										X	X	
Cabinet	CA28122						X	X					
Cabinet	CA28134				X	X							

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • USE	TYPE	ITEM No.	RAYTHEON • USE	TYPE	ITEM No.	SYLVANIA • USE	TYPE
V1	1st Video IF Amp.	6BZ6	V7	Audio Output	EL84/6BQ5			
V2	2nd Video IF Amp.	6BZ6	V8	Vert. Mult. - Vert. Output	6CM7			
V3	3rd Video IF Amp.	EF184/6EJ7			6CG7			
V4	Video Output - Sound IF Amp.	6GN8	V9	Horiz. Mult.	6DQ6			
			V10	Horiz. Output	6AX4GT			
V5	AGC Keying - Sync Sep. - Noise Limiter	6BU8	V11	Damper	1G3GT/1B3GT			
			V12	HV Rectifier	5U4GB			
V6	Audio Detector	6DT6A	V13	LV Rectifier				

PICTURE TUBE

ITEM No.	REPLACEMENT DATA OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V14	23AHP4		23AHP4 ①		23AHP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	350	CO-28052	PH5-550		WT460		TVA-4618	
B	60	350				TCS2		TVA-2722	
C	10	350				TC29			
D	50	25							
E	4	350							
C2	4	350	CO-27448	PRH600	BR435	TC697	TD-4-450	TVA-1601	
C3	10	450NP	CO-4022-3	PRI-100		TCN51			

FIXED CAPACITORS

ITEM No.	RATING			REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	15	NPO	10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C5	.001				BPD-001	BYA10D1	DD-102	CCD-102	B-210	5HK-D10
C6	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	470		10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C8	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.002				BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C10	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C14	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C17	47		NPO 10%		P288N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C18	.05		50V		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C19	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	82				BPD-03	BTD823		CCD-303	B-120	5HK-S20
C21	47				DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C22	15	NPO	10%	(18) †	NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C23	.1		400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C24	.047		400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C25	.02		400V		P488N-02	DD-203	CUB4S2	4DP-3-203	GEM-412	4TM-S20
C26	.002		600V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-6222	6TM-D20
C27	.22		200V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C28	.1		400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C29	6. 8	NPO	10%		NPO-DI 6. 8	DTZ-5R8	C10V8RC	CCTO-6R8	CNO-568	10TCC-V68
C30	330				DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C31	820		10%		DI-820	DD-821	5R5T8	CCD-821	GP382	10TS-T82
C32	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.001			Note 1	BPD-001	DD-102	BYA10D1	CCD-103	B-210	5HK-D10
C34	.1		600V	Note 1	P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C35	.047		400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C36	4. 7	NPO	5%	(5-N750) †	NPO-SI 4. 7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C37	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C38	.01				BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-E10
C39	.05		50V		P288N-05	DD-503	CUB2S5	2DP-3-503	GEM-415	2TM-S50
C40	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	330				DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C42	.002				BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C43	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C44	.0033		600V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C45	100	N1500		#CCD101M		TCL-100		*		
C46	100	N1500		#CCD101M		TCL-100		*		
C47	100	N1500		#CCD101M		TCL-100		*		
C48	.047		400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C49	470		10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C50	.005				BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C51	.0025		10%		DI-2500		1R5D25	CCD-252		10TS-D25
C52	820		10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C53	.0047	600V	10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47
C54	.0047	600V	10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47
C55	.035	600V	10%	#CO-0-6353K						6PS-S35
C56	.01				BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-E10
C57	.1		600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C58	.01		1600V		P1684CM-1	DD16-103	CUB16S1	16DP-3-103	GEM-1611	MB-S1
C59	.15		400V		P488N-15		CUB4P15	4DP-4-154	GEM-4015	4TM-P15
C60	470		1000V 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C61	.1		200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C62	.0039		10%		1464-0039		1R5D39	CM-20B-392K	MCJ462-5	MB-S39
C63	.1		600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C64	.001	600V	10%		V84C6D1-10%	DD-102	PM6D1	6DP-1-102	GEM-1621	6TM-D10
C65	110-880			#CT3526				487		
C66	.047		400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C67	.01				BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-E10
C68	.1		400V	(.22) †	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C69	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C70	150	3000V	10%	#CO3830				VCM-20-151K		
C71	68	3000V	10%	#CO4520					3DY-468	
C72	.01	600V			P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-615	6TM-S50

† Alternate Value
* Not normally in distributor's stock.

Note 1. May not be used in some versions.
Available thru distributor on order to manufacturer.

SET 552 FOLDER 1

OLYMPIC CHASSIS KE, KEU, 158, 159, 160 FOLDER 1

TV PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	30K	½	PT31051					Contrast
B	20K Tap							
C	1meg							Volume
	Switch							
R2A	1-5meg	½	PT5702	B-69	A47-1meg-S	QU-137	U54	Push-Pull Power Off-On
B	Shaft			Not Req.	K26-1	Not Req.	Not Req.	Brightness
R3A	2meg	½	PT26438	B-75	A47-2meg-S	QU-130	U56	Vert. Hold
B	Shaft			Not Req.	K26-1	Not Req.	Not Req.	
R4A	1meg	½	PT26439	B-69	A47-1meg-S	QU-137	U54	Horiz. Hold
B	Shaft			Not Req.	K26-1	Not Req.	Not Req.	
R5A	500K	½	PT25790	TT-59	B47-500K-S	BU-133	PTA55L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R6	2.5meg	½	PT5008-1	TT-83	B47-2.5meg-S	BLC-3	TA255L	Height
R7A	100K	½	PT27319	TT-40	B47-100K-S	BU-128	PTA6L	AGC Stability
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	470Ω			
R9	470Ω			
R10	180Ω			
R11	180Ω			
R12	1000Ω			
R13	47K			
R14	100K			
R15	330Ω			
R16	15K			
R17	100K			
R18	47Ω			
R19	100K			
R20	15K			
R21	12K			
R22	8200			
R23	47Ω			
R24	150K			
R25	4700Ω			
R26	470Ω			
R27	150Ω			
R28	5600Ω 2W			
R29	180Ω			
R30	3900Ω			
R31	1meg			
R32	1meg			
R33	18K 2W			
R34	150			
R35	4700Ω 4W	PW4-4700	5W-SQ-4700	
R36	8200Ω			
R37	18K			(15K) *
R38	150K			
R39	220K			
R40	22K			
R41	2700Ω			
R42	2.2meg			
R43	47K			
R44	220K			
R45	33K			
R46	33K			
R47	15meg			
R48	4.7meg			
R49	1.5meg			
R50	100K			
R51	22K			
R52	47K			
R53	470K			
R54	68K			
R55	68K			
R56	150K			
R57	560K			
R58	10K			
R59	18MEG			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R60	2.2meg			
R61	100K			
R62	470K			
R63	330K			
R64	1000Ω 4W	PW5-1000	5W-SQ-1000	
R65	1.5meg			
R66	1.5meg			
R67	1.5meg			
R68	2700 1W			
R69	470K			
R70	33K			
R71	10meg			
R72	6800Ω 1W			
R73	68K			
R74	330K			
R75	68K			
R76	100K			
R77	27K			
R78	1.5meg			
R79	1.5meg			
R80	1.5meg			
R81	12K			
R82	1meg			
R83	470K			
R84	150Ω			
R85	10meg			
R86	150K			
R87	100Ω			
R88	560Ω			
R89	560Ω			
R90	330K 1W			
R91	330K 1W			
R92	680Ω 1W			
R93	36K 4W	PW5-36K	10W-SQ-36K	
R94	1000Ω 2W			
R95	470K			
R96	330K			
R97	820Ω			
R98	22K			
R99	47Ω			
R100	8900Ω 4W	PW5-8900	TW-SQ-8900	
R101	15Ω			
R102	100K			
R103	150K			
R104	47K 1W			
R105	4700Ω			
R106	3.3Ω			
R107	22K 1W			
R108	15K 2W			
R109	3300Ω 1W			
R110	470K			

* Alternate Value

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K1	AFC & Mult. Network	100mmf, 150mmf, .001mfd, .001mfd, .005mfd, 68K, 82K, 100K, 560K, 630K, 1meg, 1meg	PC25716	Aerovox PA-724 Centralab PC-367
K2	Horiz. Output Grid	680mmf, .001mmf, 8200Ω, 82K, 470K	PC25714	Aerovox PA-723 Centralab PC-366

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke	CL27015 ①					① Wound on 1meg Resistor.
L2	47.5MC Trap	CL25545	TV-153	6235	RTC-8556	T28	② Includes Complete Assy.
L3A	1st Video IF	CL4806-1	TV-129	6233	RTC-8561	T210	
B	47.5MC Trap						
L4	RF Choke (3.5uh)	CK3742	BC-564	4608	RTC-8518	T858	
L5	Peaking (36uh)	CL1535	TV-180	6178	RTC-8593	T301	
L6	2nd Video IF	CL4791	TV-130	6219	RTC-8551	T217	
L7	3rd Video IF	CL4511	TV-130	6219	RTC-8551	T217	
L8	Fil. Choke (1.5uh)	CL2427	BC-562	4604	RTC-8516	T856	
L9	Fil. Choke (1.5uh)	CL2427	BC-562	4604	RTC-8516	T856	
L10A	4th Video IF	CL26618 ②					
B	RF Choke (5.6uh)		SW-631	4609	RTC-8519	T859	
L11	RF Choke (1.7uh)	PM1728	BC-562	4604	RTC-8516	T856	
L12	Peaking (110uh)	CL26425	TV-194	6112	RTC-8574	T305	
L13	Peaking (150uh)	PM1829	TV-196	6120	RTC-8575	T308	
L14A	4.5MC Trap	TR3386-1					
B	1st Sound IF						
L15	Peaking (300uh)	CL2614	TV-203	6174	RTC-8592	T324	

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L16	Peaking (6.8uh)	CK4415	BC-565	4610	RTC-8520	T859	
L17	Peaking (300uh)	CL3403	TV-196	6155	RTC-8587	T318	
L18	2nd Sound IF	CL4021					
L19	Quadrature	CL31052	TV-124	1481	RTC-8606	T248	
L20	RF Choke (6.8uh)	CK4415	BC-565	4610	RTC-8520	T859	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L21	Horiz. Stabilizer	CL5464-1	TV-163	6210	RTC-8622	H8-5	WLC-25	T103	

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES	INDUCTANCE (0 CURRENT 1000 ^A)	REPLACEMENT DATA OLYMPIC PART No	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L22	.270A	40Ω	.5 Hy.	CK26651		C-2343 ①		C-36X	① Drill new mounting hole(s).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1.75A	580VCT ② .270A DC	5V ③ 3A	TR26192-1	P-3844		26R40	R-66BC	
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ③ 7.5A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	TR-25791-2				A-141X	
T3	Yoke (Horiz.18.4MH) (920) (Vert. 40MH) Rear Cover and Centering Device	CL-3600-7	MDF-92 ①	DY-16A ①	Y-16 ①	Y-41-3 YC-112	
T4	Horiz. Output	TR-3599-5	HVO-131 * ②③	HO-315 *	FLY-143 * ③	D 120 *	

① Connect same as original. Use original rear cover with centering device and yoke damping network if necessary.
② Drill new mounting hole(s). ③ Filament requires two turns.

***HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA**

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9	8	9	4	9
8	6	8	8	8
6	6	6	7	6
3	5	3	2	3
2	4	2	5	2
1	3	1	1	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7600Ω	3-4Ω	TR28019-B ①	A-2931	A-3878	26S52	S-7X	① Alternate Part #TR28019

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA OLYMPIC PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M1	C	¼A 250V	FU26203		332.500 (C ¼A 250V)	346002	C ¼	HC 3/10 - ¼
M2	3½"	length of #26 wire						
M3	3½"	length of #26 wire						

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M4		RF5465 *	6GC1 *		* Dual Selenium Diode, Common Cathode Type

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M5	Tuner	CL27160	VHF, Used in KE Chassis
	Tuner	CL26405	VHF-UHF, Used in KEU Chassis
M6	Switch	SW-2966-1	Local-Distanf (DPDT Slide Type)
M7	Switch		3D (DPDT Slide Type)
M8	Switch		Speech
M9	Switch		Music

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8465 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

RADIO 160 PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V15	FM RF Amp.- FM Conv.	6DT8 (ECC85) *
V16	1st FM IF Amp.	6BA6
V17	2nd FM IF Amp.	6BA6
V18	Ratio Detector	6AL5
V19	AM Converter	6BE6
V20	AM IF Amplifier	6BA6

ITEM No.	USE	TYPE
V21	Channel A AF Amp. -	12AX7
	Channel B AF Amp.	
V22	Channel A Output	EL84/6BQ5
V23	Channel B Output	EL84/6BQ5
V24	Rectifier	5Z4H/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C73A	50	400	CO-26186	AFH3-50-80	BD350	FP260	TMD-2660	TVLS-3698 *	
B	100	400			BR10045	TC605	TD-100-450		
C	10	400							
C74A	10	450	CO-26609	PR4-175	BBRQ22245C	WQ775		TVA-4712	
B	20	40							
C	20	40							
C75	4	50	CO-2756	PRH400	BBR4-50	TT60X4	TD-4-50	TVA-1402	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C76	4.7	N750 5%		N750-S1 5.0	TCN-5	C10V5C	CCTN-050	CN7-547	10TCU-V50
C77	.001			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-DI0
C78	.0015			BPD-0015	DD-152	BYA10DI5	CCD-152	B-215	5HK-DI5
C79	3.6	N110					*		
C80	.002			SI-2000	DS-202	BYA10D2	CCD-202	B-220	5HK-D20
C81	.001			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-DI0
C82	17	N110 5%					*		
C83	14	N110 5%					*		
C84									
C85	16	N470 5%					*		
C86	18	N110 5%					*		
C87	3	N470					*		
C88	.0015			BPD-0015	DD-152	BYA10DI5	CCD-152	B-215	5HK-DI5
C89	10			NPO-S1 10	TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C90	.001			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-DI0
C91	.006			BPD-005	DD-502	BYA10D6	CCD-502	B-215	5HK-D60
C92	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C93	.01			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C94	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C95	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C96	.01			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C97	330			DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C98	330			DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C99	.01			BPD-01	DD-113	BYA10SI	CCD-103	B-110	5HK-SI0
C100	.002			BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C101	.05	50V		P288N-05	DD-503	CUB225	1DP-2-503	GEM-415	2TM-S50
C102	12	N1500 10%	#CCDW120				*		
C103	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C104	.02	50V		P288N-02	DD-203	CUB222	1DP-1-203	GEM-412	4TM-S20
C105	5	N4700 5%	#CCRZ050K				*		
C106	.01			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C107	.01			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C108	.01			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C109	.05	50V		P288N-05	DD-503	CUB225	1DP-2-503	GEM-415	2TM-S50
C110	.05	50V		P288N-05	DD-503	CUB225	1DP-2-503	GEM-415	2TM-S50
C111	.047	400V		P488N-047	DD-503	CUB4547	4DP-3-473	GEM-4147	4TM-S47
C112	.005		(.0033) †	BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C113	220	10%	(330) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C114	.01		(.0068) †	BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C115	.0033			BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C116	100	N1500			TCL-100		*		
C117	.0033	600V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C118	.05	50V		P288N-05	DD-503	CUB225	1DP-2-503	GEM-415	2TM-S50
C119	.047	400V		P488N-047	DD-503	CUB4847	4DP-3-473	GEM-4147	4TM-S47
C120	.005		(.0033) †	BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C121	220	10%	(330) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C122	.01		(.0068) †	BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-SI0
C123	.02	400V	(.0068) †	P488N-02	DD-203	BYB5E3	CCD-203	B-120	5HK-S20
C124	.0033			BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C125	100	N1500			TCL-100		*		
C126	.0033	600V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C127	2.2	3V			UK-225				4T-150
C128	2.2	3V			UK-225				4T-150
C129	.01	600V		P688N-01	D6-103	CUB6SI	6DP-2-103	GEM-611	6TM-SI0
C130	.01	600V		P688N-01	D6-103	CUB6SI	6DP-2-103	GEM-611	6TM-SI0
C131	.035	600V	#CO-0-6353K						6PS-S35

Olympic Part Number † Alternate Value
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

OLYMPIC CHASSIS KE, KEU, 158, 159, 160

FOLDER 1

FM–AM ALIGNMENT INSTRUCTIONS

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A10 thru A13, A17, A18 ... GENERAL CEMENT #5097, 8727
WALSCO #2515
A14, A15, A22 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A16, A21 ..... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A19, A20 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open	Across voice coil	A10, A11, A12, A13	Adjust for maximum output.
2.	Loop	1500KC	1500KC	"	A14, A15	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference	DC probe to point Ⓒ. Common to chassis.	A16, A17, A18, A19, A20	Adjust for maximum deflection.
4.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
3.	Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) Point of non-interference	Vert. Amp. to point Ⓒ. Low side to chassis.	A16, A17, A18, A19, A20	Disconnect stabilizing capacitor. Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Reconnect stabilizing capacitor.
4.	"	"	"	Vert. Amp. to point Ⓓ. Low side to chassis.	A21	Adjust to place marker at the center of crossover lines similar to Fig. 3. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Across FM antenna terminals with 120Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓒ. Common to chassis.	A22, A23 *	If necessary, adjust for maximum deflection. If more than ½ turn is required, substitute FM Mixer - Oscillator tube.

* In some versions only

FIG. 2

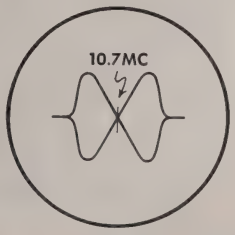
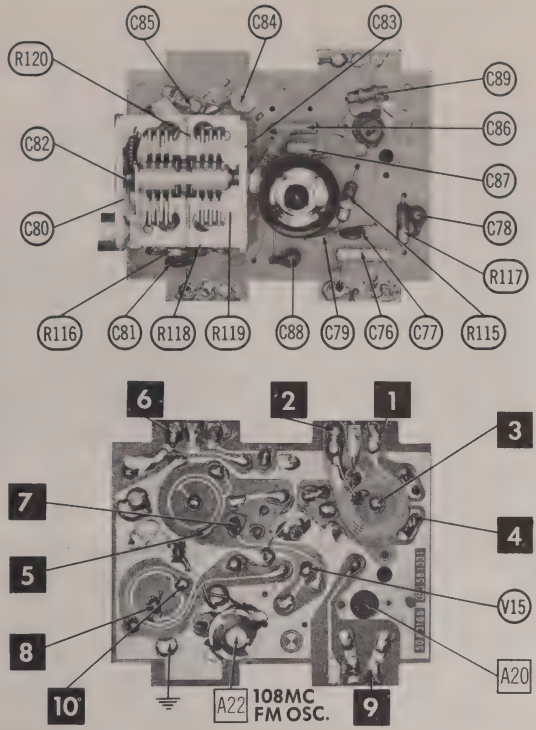


FIG. 3



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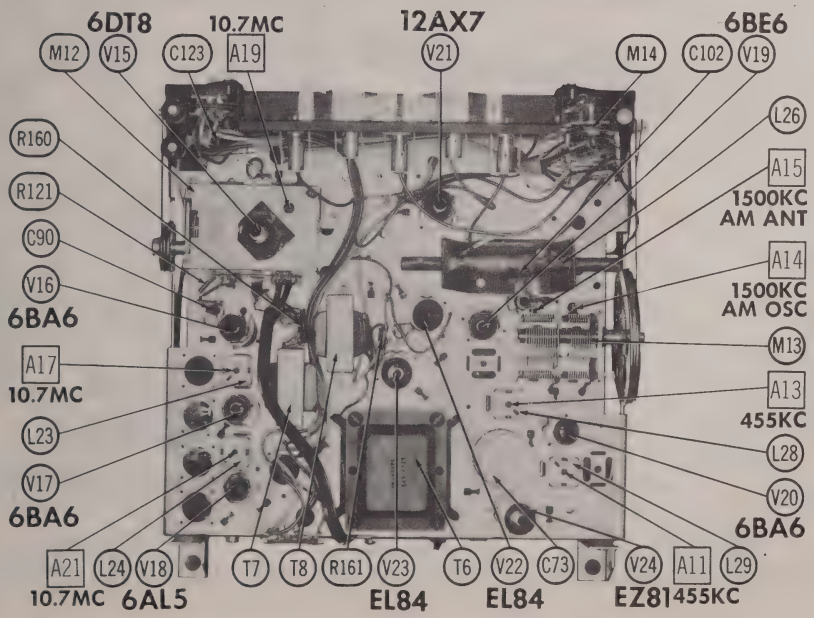
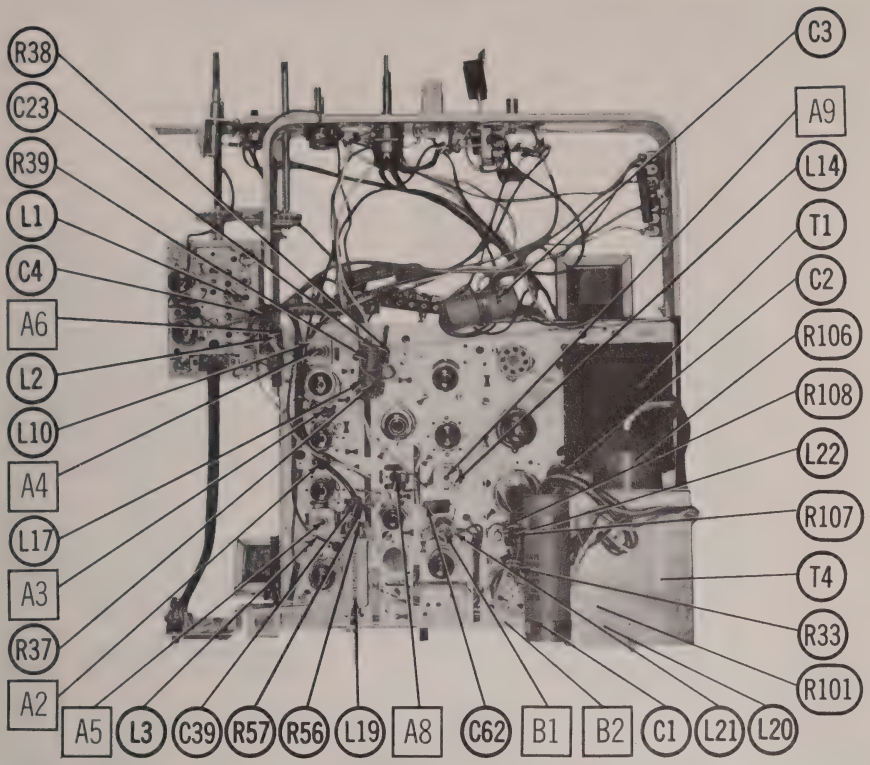
FM RF SUB CHASSIS

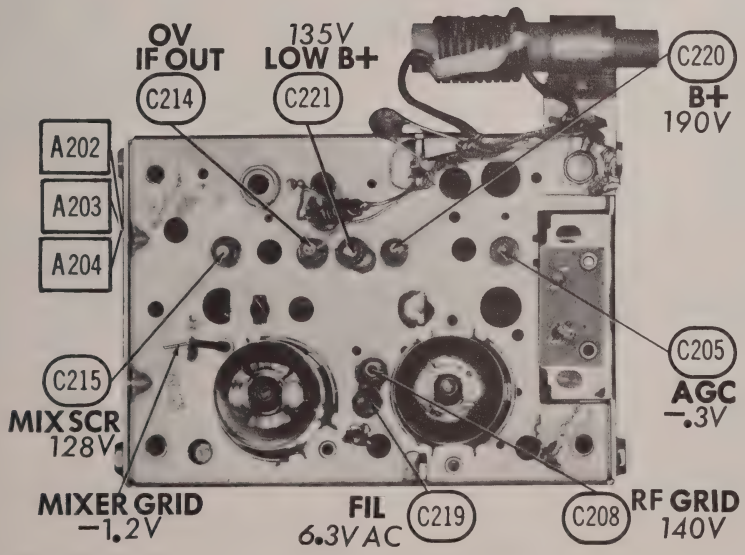
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



FM-AM RADIO CHASSIS 160 - TOP VIEW



TV CHASSIS - TOP VIEW

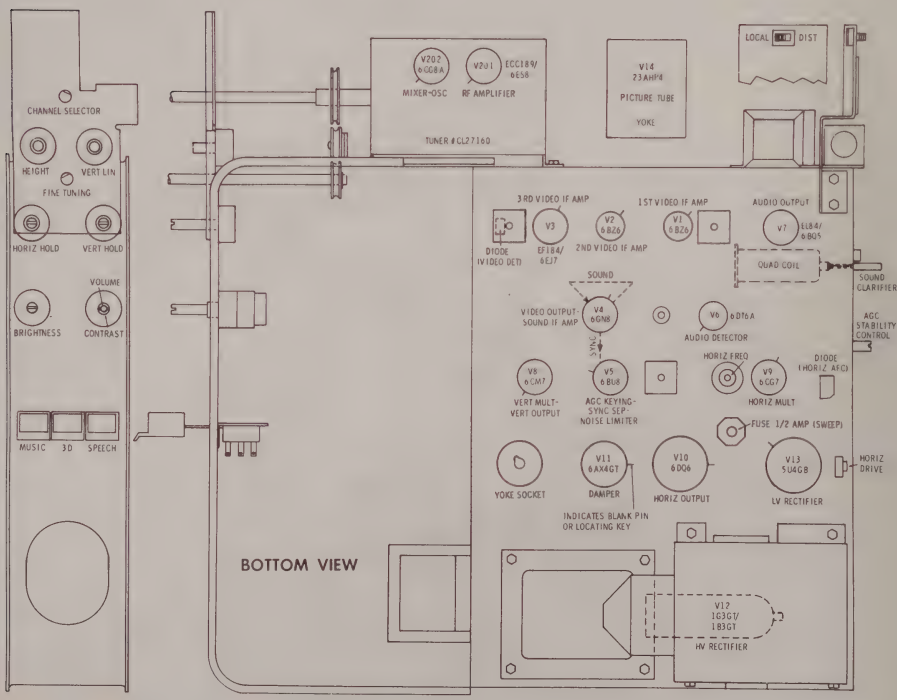


VHF TUNER CL27160 - TOP VIEW

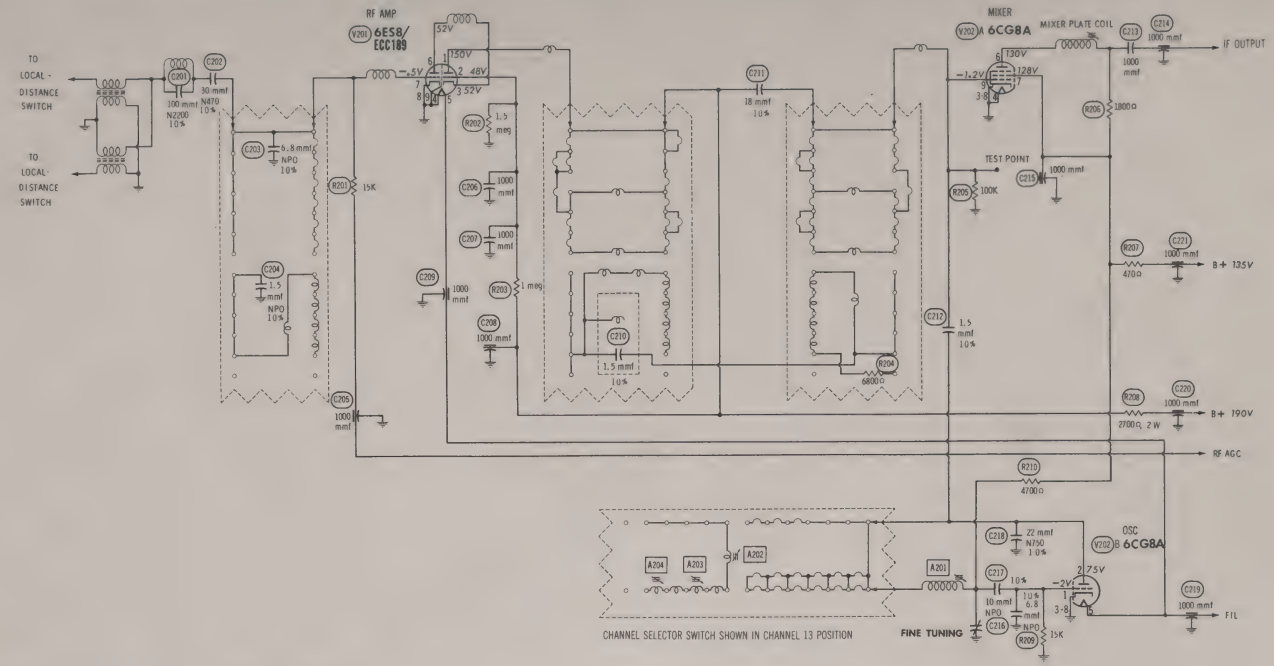
TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	156K	47Ω	FIL	FIL	▪870Ω	▪870Ω	0Ω		
V2	6BZ6	55K	70K	FIL	FIL	†860Ω	†860Ω	70K		
V3	EF184/ 6EJ7	180Ω	4700Ω	NC	FIL	FIL	0Ω	†6000Ω	†6100Ω	0Ω
V4	6GN8	0Ω	100K	†22K	FIL	FIL	15Ω	500K	†18K	†4000Ω
V5	6BU8	†10K	†6800Ω	1.6meg	FIL	FIL	•30K	†2.2meg	†55K	†10meg
V6	6DT6A	3Ω	560Ω	FIL	FIL	†600K	†20K	560K		
V7	EL84/ 6BQ5	NC	800K	270Ω	FIL	FIL	NC	†1300Ω	NC	†1000Ω
V8	6CM7	†2800Ω	NC	0Ω	FIL	FIL	•†1.7meg	•1.5meg	•1.7meg	100Ω
V9	6CG7	†44K	2.1meg	820Ω	FIL	FIL	†82K	68K	820Ω	0Ω
V10	6DQ6	TP	FIL	NC	†8900Ω	470K	TP	FIL	0Ω	TOP CAP †40Ω
V11	6AX4GT	NC	NC	100K	NC	†40Ω	NC	FIL	FIL	
V12	1G3GT/ 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †600Ω
V13	5U4GB	NC	¶ 25K	NC	22Ω	TP	23Ω	TP	¶ 25K	
V14	23AHP4	FIL	22K	Pin 6 †55K	Pin 10 †55K	Pin 11 •180K	Pin 12 FIL			
V201	ECC189/ 6ES8	†6000Ω	7000K	INF	FIL	FIL	-0Ω	4meg	0Ω	0Ω
V202	6CG8A	15K	†15K	0Ω	FIL	FIL	†12K	†10K	0Ω	100K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V13.
‡ MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION
▪ MEASURED FROM PIN 2 OF V2.
- MEASURED FROM PIN 3 OF V201.
TP TIE POINT



TUBE PLACEMENT CHART



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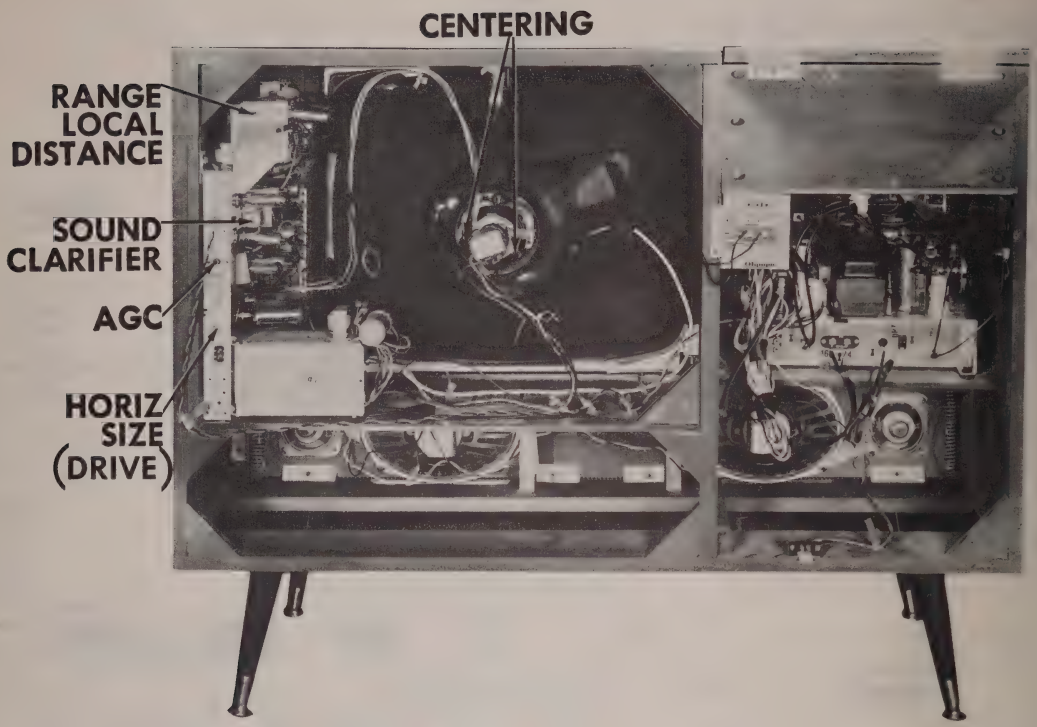
OSCILLATOR ALIGNMENT

Set the fine tuning to the center of its range. Set the channel selector to the highest high band channel operating in the area. Adjust A201 for best picture and sound. Check all other high band channels operating in the area in a descending order and if necessary, adjust the coil for that channel by bending toward or away from the wafer for best picture and sound.
Set the channel selector to the highest low band channel operating in the area and adjust the appropriate slug for best picture and sound. A202 is the adjustment for both channel 6 and 5. However the slug can only be reached when the selector is set to channel 6. Therefore, to adjust channel 5, switch to channel 6, adjust slug, then switch back to channel 5 and check picture. Repeat until adjustment is satisfactory. A203 is for adjusting channels 4 and 3 and is adjusted in the same manner switching to channel 4 to adjust channel 3. A204 is for adjusting channel 2.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

VHF TUNER CL27160



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow it to warm up for 2 minutes. Tune in a TV station, preferably with a test pattern.

Connect a clip lead from point Ⓔ to chassis. Connect another clip lead across the Horizontal Stabilizer Coil (L21).

Adjust the Horizontal Hold until the picture synchronizes horizontally. (It may float back and forth.)

Remove the clip lead from L21. Adjust the Horizontal Frequency Slug (B1) until the picture is again in frequency. Remove clip lead from point Ⓔ and chassis. Turn Horizontal Drive Trimmer (B2) counterclockwise until a vertical white line (drive line) appears near the center of the screen, then turn clockwise until line just disappears. If drive line cannot be obtained, adjust B2 for proper width.

If B2 is adjusted, recheck adjustment of B1 and Horizontal Hold.

DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL MODEL KE37I

1. Remove 2 screws on bottom edge of rear cover.
2. Remove rear cover.
3. Remove 5 push-on type knobs on front.
4. Disconnect speaker leads, picture tube socket, high voltage lead, and yoke socket.
5. Remove 3 chassis bolts and 1 wood screw (on side of cabinet).
6. Remove channel indicator face plate, then remove dial plate.
7. Pull chassis straight back.

CHASSIS REMOVAL FM-AM RADIO 160

1. Remove 5 screws holding rear cover.
2. Remove 2 chassis bolts.
3. Disconnect FM antenna leads, phono leads, motor plug, and external plug.
4. Remove 2 wood screws holding AC plug.

PICTURE TUBE REMOVAL

It is necessary to remove TV chassis for picture tube removal.

PHOTOFACT® Folder

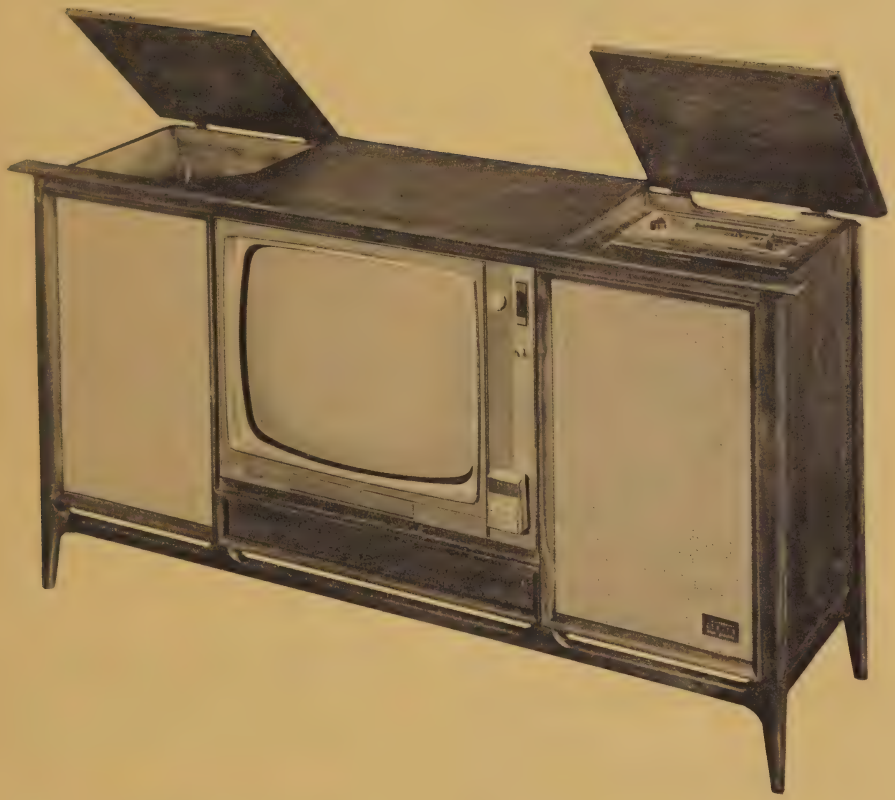
**ZENITH CHASSIS 16G22, Q, U,
5G29, S-51774, S-51863, S-51864**

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ZENITH CHASSIS 16G22, Q, U,
5G29, S-51774, S-51863, S-51864



ZENITH CHASSIS 16G22, Q, U,
5G29, S-51774, S-51863, S-51864

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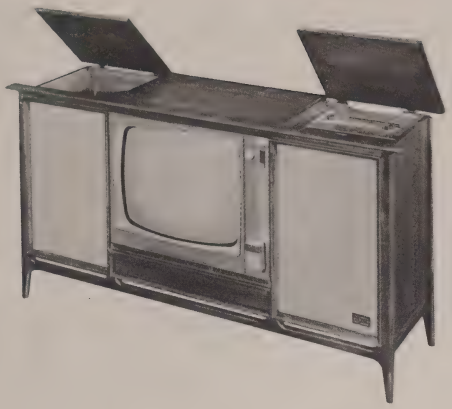
SET 552 FOLDER 2

ZENITH CHASSIS 16G22, Q, U, 5G29, S-51774, S-51863, S-51864

ZENITH CHASSIS 16G22, Q, U, 5G29, S-51774, S-51863, S-51864



MODEL G3388W

TRADE NAME	ZENITH MODELS	TV Chassis	Remote Control Receiver	VHF Tuner	UHF Tuner
	G2715Y; G2717E	16G22		175-172 or 175-306	
	G2717R, W; G2755H, M, R, W; G2756E, R, W	16G22		175-172	
	G2762W	16G22		175-142 or 175-302	
	G3310E, R, W	16G22Q	S-51863	175-172	
	G3311R, W, Y	16G22Q	S-51864	175-172	
	G3353E, W; G3354M, R; G3388W	16G22Q	S-51774	175-166 or 175-304	
	G2762WU	16G22U		175-141 or 175-301	175-8
	G2715YU; G2717EU, RU, WU; G2755HU, MU, RU, WU; G2756EU, RU, WU	16G22U		175-171	175-8
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois				
TYPE SET	Television Receiver (16G22Q Chassis with Remote Control; G3388W Model with FM-AM Tuner Ch. 7F20 *, Audio Amp. Ch. 5G29, and 4 Speed Automatic Record Changer.)				
TUBES	TV: VHF - Sixteen, UHF - Seventeen Amp. Ch. 5G29: Five Remote Control Receiver S-51774, S-51864: Eight Remote Control Receiver S-51863: Six				
POWER SUPPLY RATING	110-120 Volts AC, 60 Cycle TV: 200 Watts, 1.8 Amp. @ 117 Volts AC TV with Remote S-51774: 230 Watts, 2.1 Amp. @ 117 Volts AC (270 Watts, 2.4 Amp. While Tuning)				
TUNING RANGE	TV: Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)				

* FOR SERVICE INFORMATION ON FM-AM TUNER 7F20 - SEE PHOTOFACT SET 525 FOLDER 2

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE	LOCATION
TV-5A (Line)	See "Tube Placement Chart"
TV-7/10A (LV Supply)	See "Tube Placement Chart"
TV-Fuse Wire (Fil.)	See M3, "Chassis - Bottom View"
Remote Control Receivers-3/4A (Line)	Chassis-Top

TUNER OSCILLATOR ADJUSTMENT

The oscillator is adjusted by fine tuning knob which engages and adjusts the individual channel strip oscillator slugs.

AGC

The AGC may be varied by means of an AGC control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus control. (See "Tube Placement Chart" for location.)

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

PINCUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the magnets so that all sides are straight.

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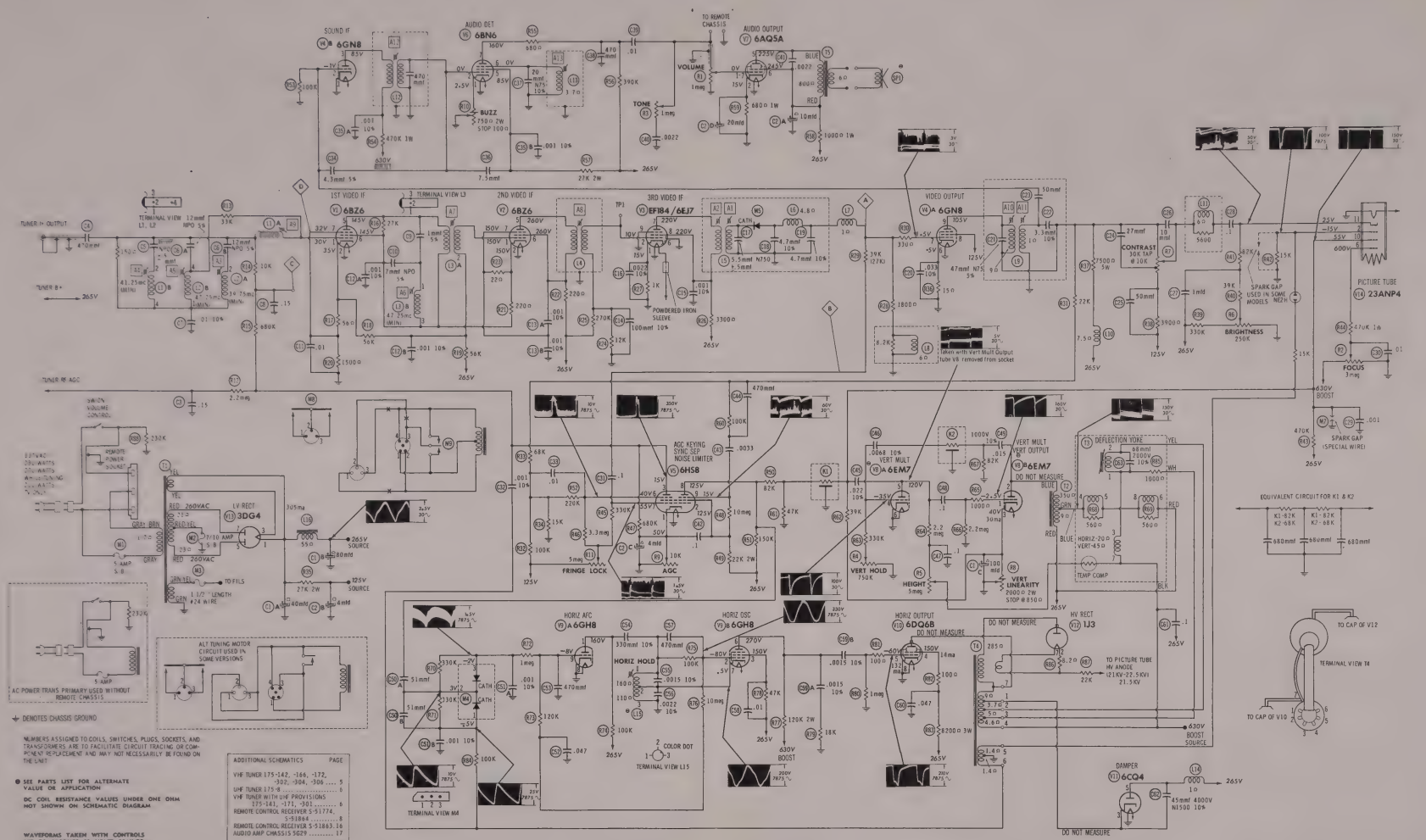

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

ADDITIONAL SCHEMATICS	PAGE
VHF TUNER 175-142, -166, -172, -302, -304, -306	5
UHF TUNER 175-8	6
VHF TUNER WITH UHF PROVISIONS 175-141, -171, -301	6
REMOTE CONTROL RECEIVER S-51774, S-51864	8
REMOTE CONTROL RECEIVER S-51863,56	16
AUDIO AMP CHASSIS 5G29	17

1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt

2 Pin numbers are counted in clockwise direction on bottom of socket

3 Measured values are from socket pin to common negative unless otherwise stated

4 Line Voltage maintained at 117 volts for voltage readings

5 All controls set for normal operation, no signal applied

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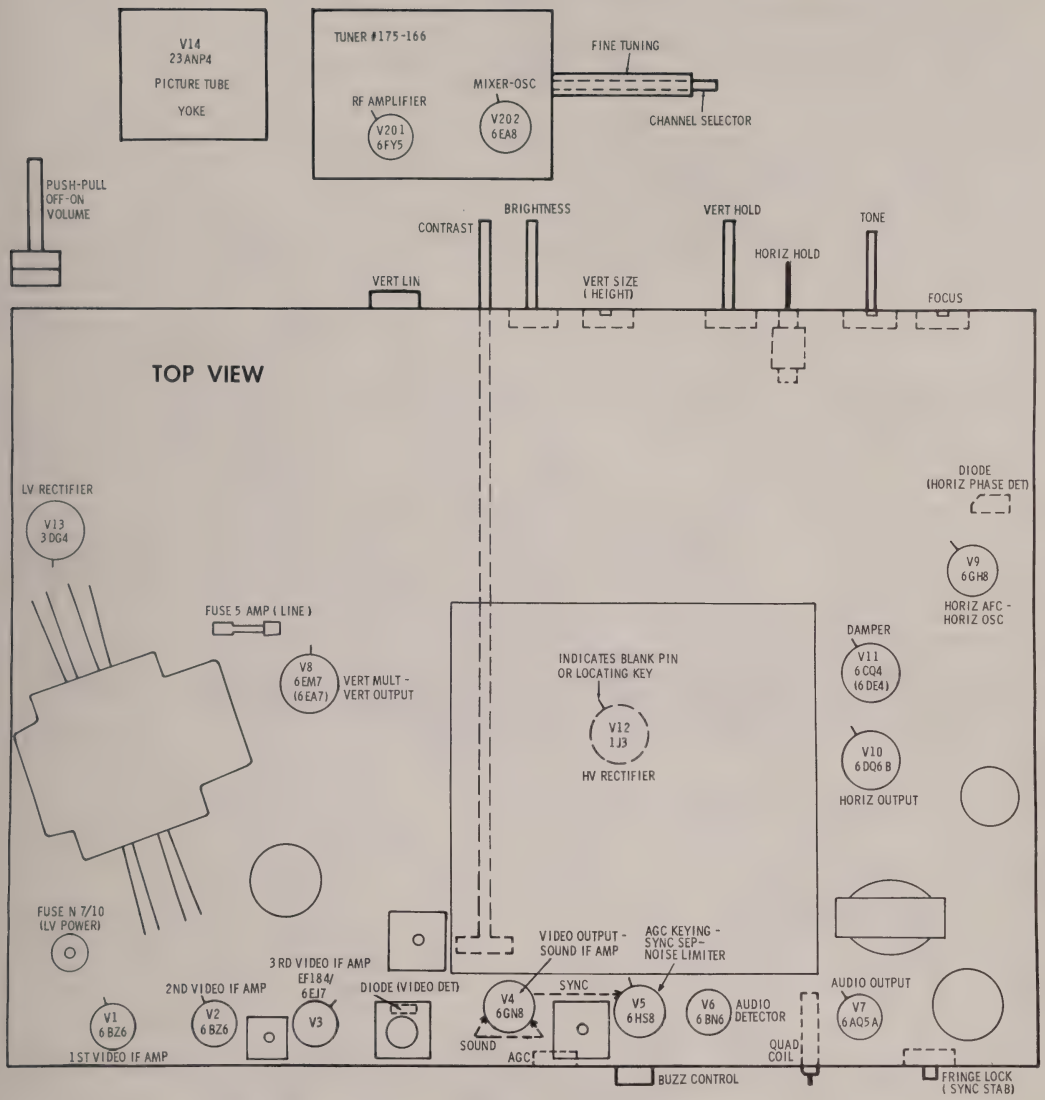
ZENITH CHASSIS 16G22, Q, U,
5G29, S-51774, S-51863, S-51864

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Fil. Wire), Fuse (Line), Fuse (LV Power), V13

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13, V14
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V8
Horiz. off freq. Diode (Horiz. Phase Det.), V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5
No vert. or horiz. sync V5

ALIGNMENT INSTRUCTIONS
TV

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A13 .... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru 470mmf to TP-1. Low side to chassis. Connect a 56Ω carbon resistor across sweep output.	44MC (10MC Swp.)	39.75MC 41.25MC 45.75MC	Between any two channels	Vert. Amp. thru 10K to point (A). Low side to chassis. (Across Video Det. load.)	A1, A2	Set sweep generator output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. If the desired response cannot be obtained, check to see that the cores are entering their respective windings from opposite ends of the coils.
2.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A3, A4, A5, A6	Connect a clip lead from point (B) to chassis. Connect a clip lead from point (C) to point (D). Use high scope gain and adjust A3 thru A6 for MINIMUM marker amplitudes as in Fig.2. A3 controls 39.75MC marker, A4 controls 41.25MC marker, and A5 and A6 control the 47.25MC marker.
3.	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A7, A8, A9 and Mixer Plate Coil	Remove clip lead from point (D) and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A7 affects low side of curve and A8 affects the high side. Remove clip leads.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver antenna terminals. Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the Audio Detector as evidenced by a hiss similar to super-regeneration in the sound. Adjust A10, A11, A12, and A13 for maximum sound of best quality. Adjust the Buzz Control for MINIMUM buzz.
If the hiss disappears during alignment, further reduce the signal level until the hiss returns.

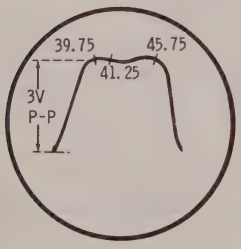


FIG.1

FIG.2

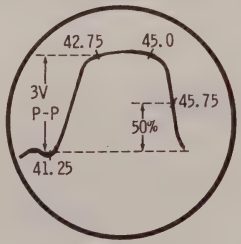
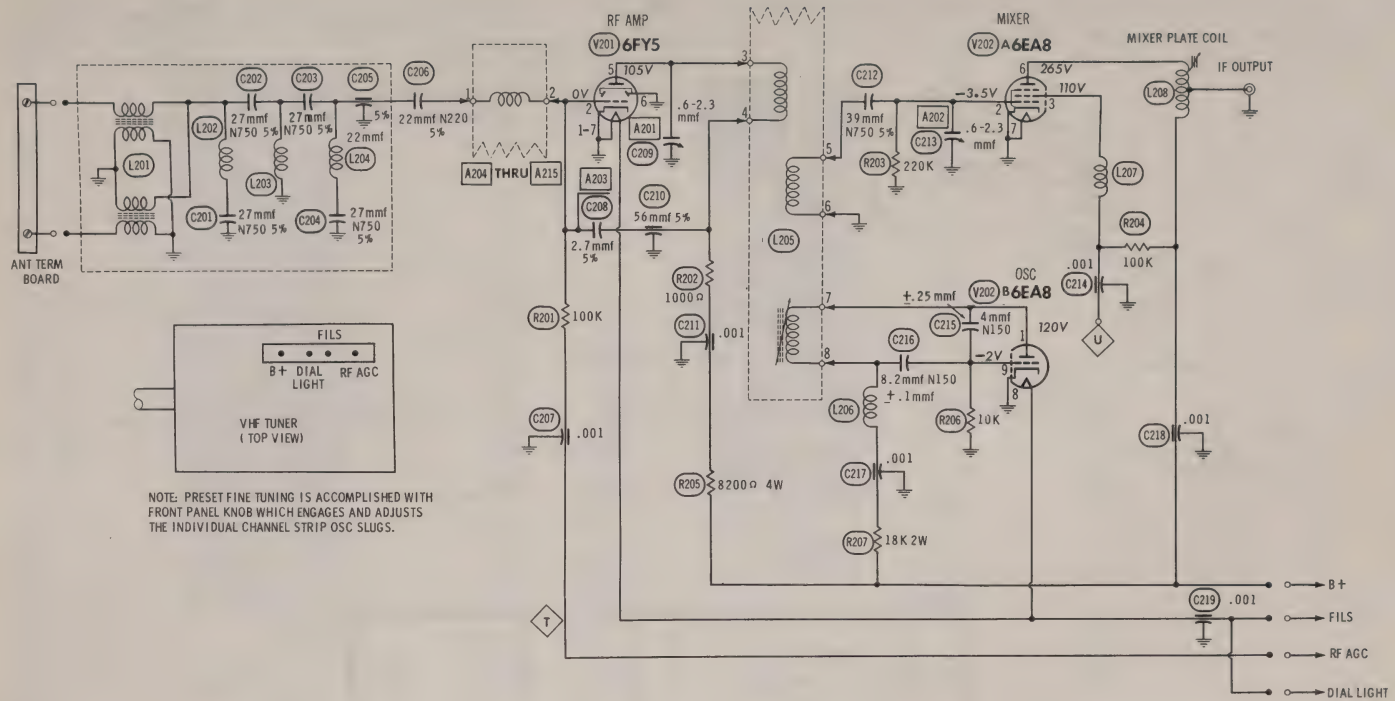


FIG.3

ALIGNMENT IDENTIFICATION PHOTOS PAGES 7, 20



NOTE: PRESET FINE TUNING IS ACCOMPLISHED WITH FRONT PANEL KNOB WHICH ENGAGES AND ADJUSTS THE INDIVIDUAL CHANNEL STRIP OSC SLUGS.

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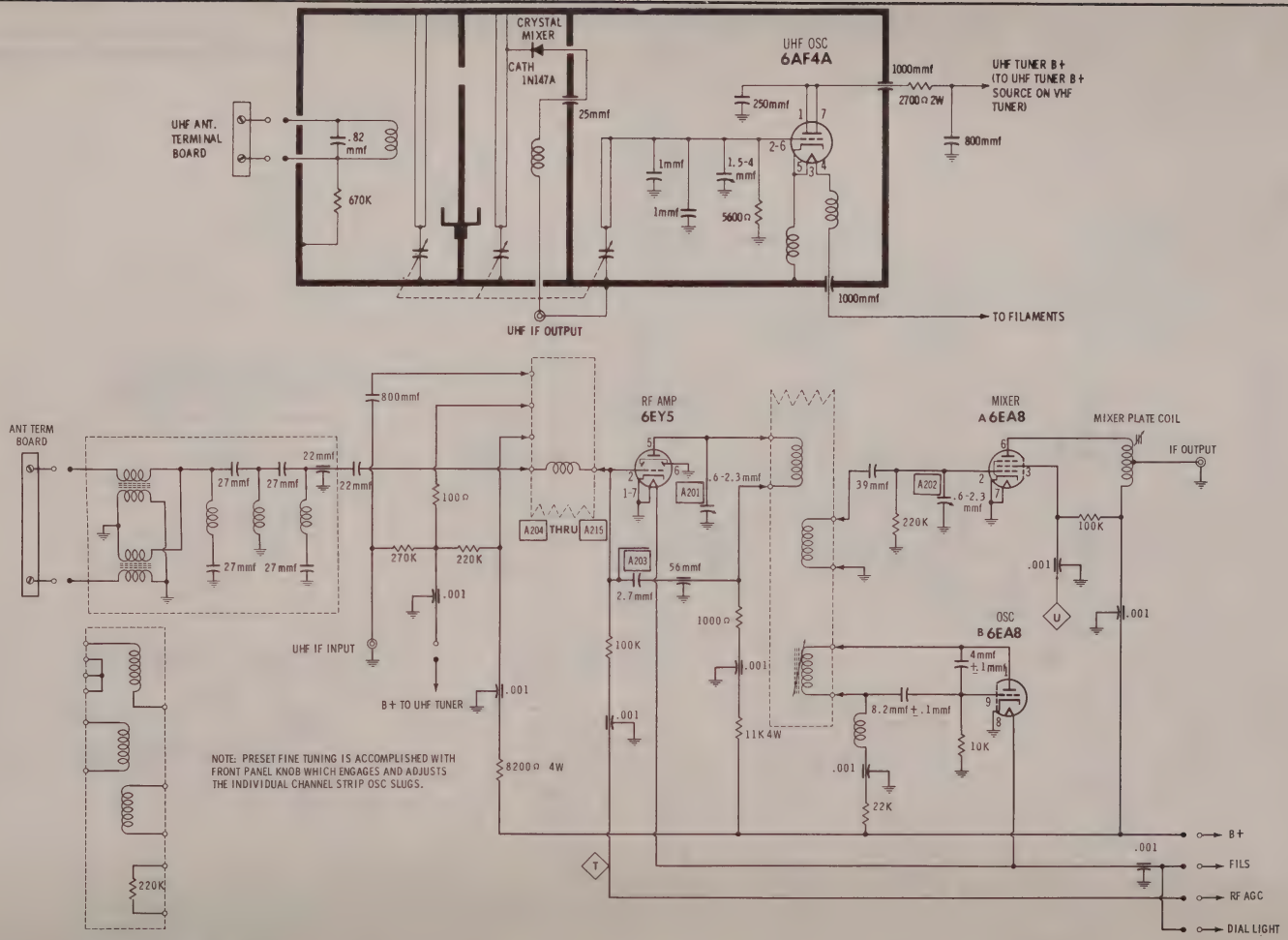
VHF TUNER 175-142, -166, -172, -302, -304, -306

ZENITH CHASSIS 16G22, Q, U,
5G29, S-5177A, S-51863, S-51864



NOTE: PRESET FINE TUNING IS ACCOMPLISHED WITH FRONT PANEL KNOB WHICH ENGAGES AND ADJUSTS THE INDIVIDUAL CHANNEL STRIP OSC SLUGS.

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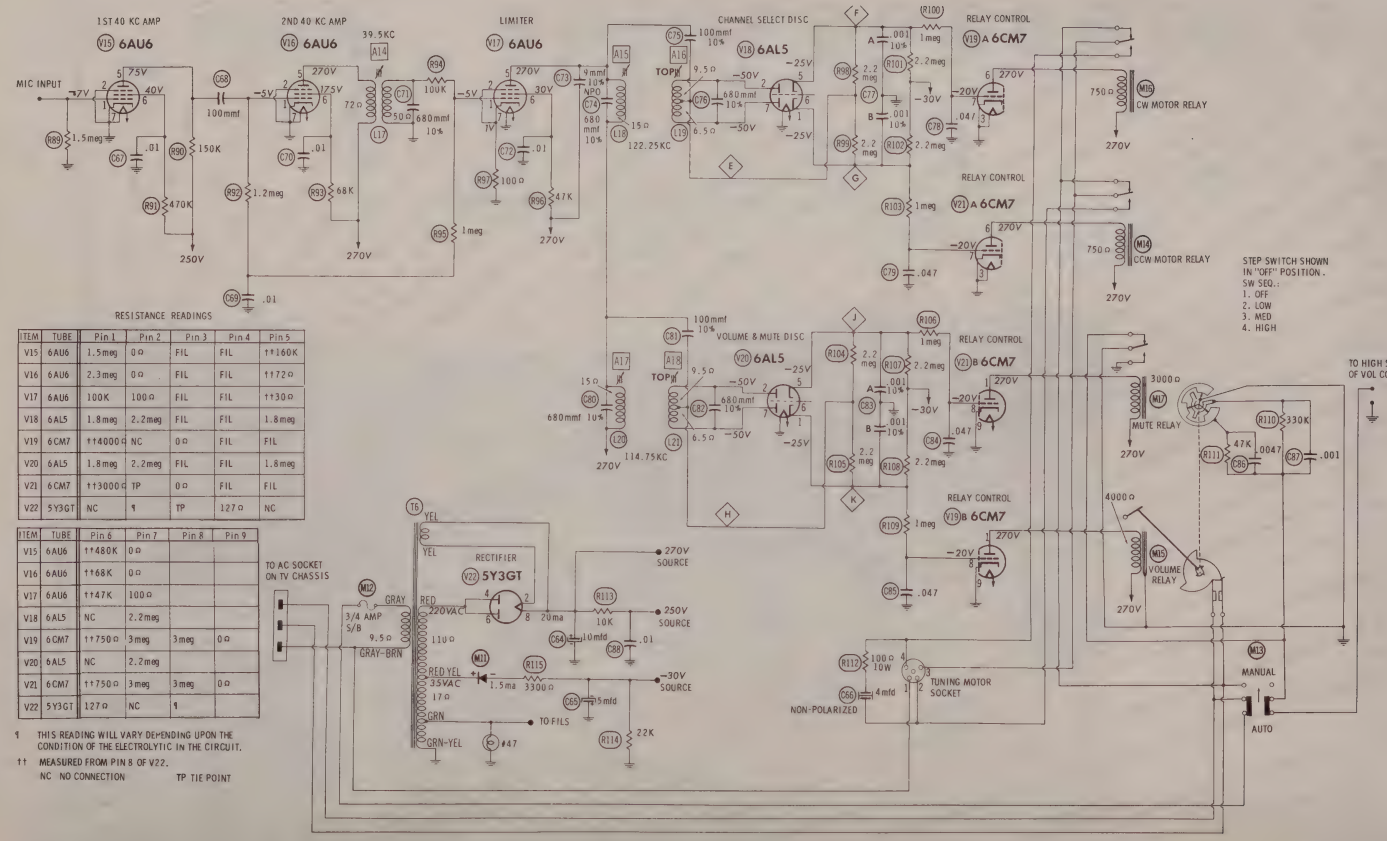
UHF TUNER 175-8, VHF TUNER WITH UHF PROVISIONS 175-141, -171, -301

TV CHASSIS BOTTOM VIEW - ALIGN., RESISTOR, INDUCTOR IDENT.



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
V15	6AU6	1.5meg	0Ω	FIL	FIL	††160K
V16	6AU6	2.3meg	0Ω	FIL	FIL	††72Ω
V17	6AU6	100K	100Ω	FIL	FIL	††30Ω
V18	6AL5	1.8meg	2.2meg	FIL	FIL	1.8meg
V19	6CM7	††4000Ω	NC	0Ω	FIL	FIL
V20	6AL5	1.8meg	2.2meg	FIL	FIL	1.8meg
V21	6CM7	††3000Ω	TP	0Ω	FIL	FIL
V22	5Y3GT	NC	¶	TP	127Ω	NC

ITEM	TUBE	Pin 6	Pin 7	Pin 8	Pin 9
V15	6AU6	††480K	0Ω		
V16	6AU6	††68K	0Ω		
V17	6AU6	††47K	100Ω		
V18	6AL5	NC	2.2meg		
V19	6CM7	††750Ω	3meg	3meg	0Ω
V20	6AL5	NC	2.2meg		
V21	6CM7	††750Ω	3meg	3meg	0Ω
V22	5Y3GT	127Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

†† MEASURED FROM PIN 8 OF V22.

NC NO CONNECTION TP TIE POINT

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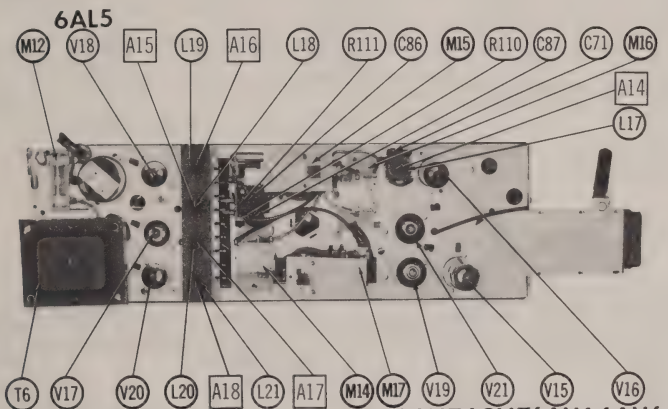
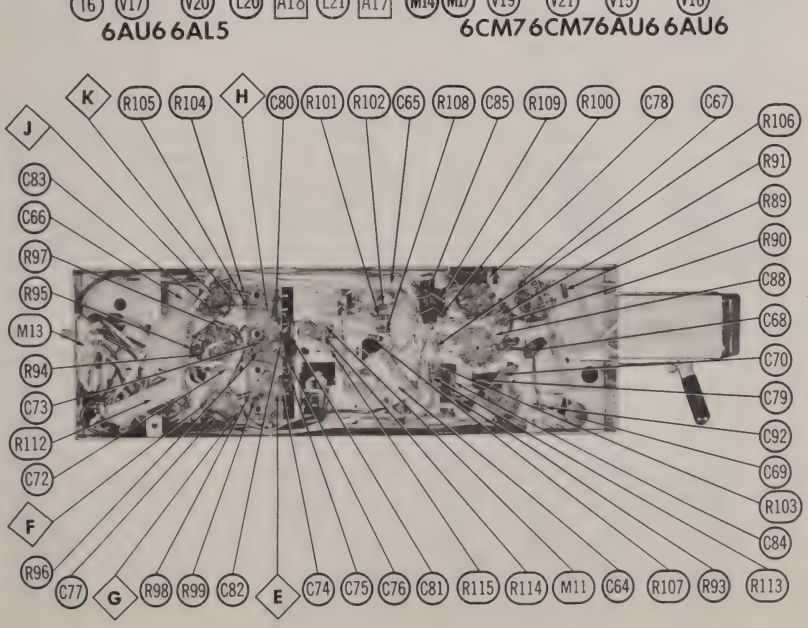
REMOTE CONTROL RECEIVER S-51774, S-51864

ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER ALIGNMENT S-51774, S-51864

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru 100K to pin 1 (grid) of V15. Low side to chassis.	39.5KC (Unmod.)	DC probe thru 1meg to point (E). Common to point (G).	A14	Adjust for maximum deflection.
2.	"	40.75KC	"	A15	"
3.	"	"	DC probe to point (F). Low side to point (G).	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
4.	"	38.25KC	DC probe thru 1meg to point (H). Common to point (K).	A17	Adjust for maximum output.
5.	"	"	DC probe to point (J). Common to point (K).	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.





REMOTE CONTROL RECEIVER S-51774

SET 552 FOLDER 2

VHF TUNER PARTS LIST AND DESCRIPTIONS

175—142,—166,—172,—302,—304,—306

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6FY5	V202	Mixer - Osc.	6EA8

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C202	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C203	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C204	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C205	22 5%	#22-3270						
C206	22 N220 5%	#22-3371				*		10TCR-Q22
C207	.001		EF-001	MFT-1000		CCF-102	CT280A	
C208	2.7 5%	#22-3405						10TCC-V27
C209	.6-2.3			829-3		CV-1	CT565	
C210	56 5%	#22-3488						
C211	.001		EF-001	MFT-1000		CCF-102	CT280A	
C212	39 N750 5%			TCN-39	C10Q39U		CN7-439	10TCU-Q39
C213	.6-2.3			829-3		CV-1	CT565	
C214	.001		EF-001	MFT-1000		CCF-102	CT280A	
C215	4 N150 ±.25mmf	#22-3372				*		
C216	8.2 N150 ±.1mmf	#22-3369				*		10TCP-V82
C217	.001		EF-001	MFT-1000		CCF-102	CT280A	
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	

Zenith Part Number

*. Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R201	100K			
R202	1000Ω			
R203	220K			
R204	100K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R205	8200Ω 4W			(11K) *
R206	10K			
R207	18K 2W			(22K) *

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	Ant. Trans.	S-49189	
L202	RF Choke	20-874	
L203	RF Choke	20-799	
L204	RF Choke	20-798	
L205A	Ant., RF, Mixer & Osc.	S-49202	Channel 2
B	"	S-49203	Channel 3
C	"	S-49204	Channel 4
D	"	S-49205	Channel 5
E	"	S-49206	Channel 6
F	"	S-49207	Channel 7

ITEM No.	USE	ZENITH PART No.	NOTES
L205G	Ant., RF, Mixer & Osc.	S-49208	Channel 8
H	"	S-49209	Channel 9
J	"	S-49210	Channel 10
K	"	S-49211	Channel 11
L	"	S-49212	Channel 12
M	"	S-49213	Channel 13
L206	RF Choke	S-49738	
L207	RF Choke	20-797	
L208	Mixer Plate	S-50720	

TV PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V7	Audio Output	6AQ5A
V2	2nd Video IF Amp.	6BZ6	V8	Vert. Mult. - Vert. Output	6EM7 (6EA7) *
V3	3rd Video IF Amp.	EF184/6EJ7	V9	Horiz. AFC - Horiz. Osc.	6GH8
V4	Video Output - Sound IF Amp.	6GN8	V10	Horiz. Output	6DQ6B
V5	AGC Keying - Sync Sep. - Noise Limiter	6HS8	V11	Damper	6CQ4 (6DE4) *
V6	Audio Detector	6BN6	V12	HV Rectifier	1J3
			V13	LV Rectifier	3DG4

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	ZENITH PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	23ANP4	23ANP4/ATP4	23ANP4 ①		23ANP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■40	400	22-3137	AFH4-57-93	C0890	FP333.2	TMT-3480	TVL-4663.4	
B	▲80	400							
C	▲100	50							
C2A	▲10	400	22-3457	AFH4-59	D0480	FP434.5	TMQ-4505	TVLS-4709.2 *	
B	■4	350							
C	▲4	150							
D	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING			REMARKS	REPLACEMENT DATA					
					AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.15	200V			P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C4	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C5	6	NPO	±.5mmf	#22-2381			C10V6C			
C6A	12	NPO	5%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
B	12	NPO	5%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C7	.01		10%		DI-10000		DPMS6S1	CCD-103		10TS-S10
C8	.15	200V			P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P10
C9	1		5%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C10	7	NPO	5%		NPO-SI 6.8	DTZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C11	.01				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12A	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C13A	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C14	100		10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C15	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C16	.0022		10%		DI-2200	DD-222	PM6D22	CCD-222	GP222	10TS-D22
C17	5.5	N750	±.5mmf			DTN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C18	4.7		10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C19	4.7		10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C20	.033	200V	10%		V84C2S33-10%		PM4S33	4DP-2-333	GEM-1613	6TM-S33
C21	47	N75	5%	#22-2467				*		
C22	3.3		10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R2	CNO-533	10TCC-V33
C23	50				SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C24	27				SI 27	D6-270	L10Q27	CCD-270	GP427	10TS-Q27
C25	50				SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C26	10				SI 10	D6-100	L10Q1	CCD-100	GP410	10TS-Q10
C27	1mfd	400V			P488N-1.0		ST4W1		GEM-41	4TM-M1
C28	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C29	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	.01				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C32	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C33	.01				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	4.3		5%	#22-3315						
C35A	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C36	7.5					DD-7R5	L10V8		GP580	10TS-V75
C37	20	N75	10%	#22-3139				*		
C38	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C39	.01				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.0022				BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C41	.0022				BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C42	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C43	.0033				BPD-0033	DD-332	BYA10D33	CM-332	B-233	5HK-D33
C44	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C45	.022	400V	10%		V84C4S22-10%		PM4S22	4DP-2-223	GEM-1612	4TM-S22
C46	.0068	200V	10%		V84C2068-10%		PM6D68	6DP-1-682	GEM-16268	6TM-D68
C47	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C48	.1	600V			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C49	.015	1000V	10%		P1084CM-018		DPMS16S15	16DP-4-153		10TM-S15
C50A	51				DI-50	DD-510	L10Q51	CCD-500	GP450	10TS-Q50
B	51				DI-50	DD-510	L10Q51	CCD-500	GP450	10TS-Q50
C51A	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C52	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C53	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C54	330		10%		1469-00033		5R5D33	CM-19B-331K		MS-330
C55	.0015		10%		1464-0015		5R5D15	CM-19B-152K	MCB456	MS-215
C56	.0022		10%		1464-0022		1R5D15	CM-19B-222K	MCJ459	MS-220

TV PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C57	470			DI-470	DD-471	BYA1GT47	CCD-471	B-247	10TS-T47
C58	.01			BPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C59A	.0015	10%		DI-1500	DD-152	PME1D5	CCD-152	GP215	10TS-D15
B	.0015	10%		DI-1500	DD-152	PME1D5	CCD-152	GP215	10TS-D15
C60	.047 400V	10%		V94C4S47-10%		P364S47	4DP-3-473	GEM-1615	47M-S47
C61	.1	600V		P68S8N-1	DF-104	CUB5P1	6DP-4-104	GEM-601	6TM-P10
C62	45	4000V NPO 10%	MB-2858						
C63	68	2000V 10%				HVA20Q68			2HY-468

◆ Zenith Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	63-4661	APL-497	C475-1meg-S	B11-137 *	PP16L	Volume
B	Shaft			AK-33	RS-3/16	Not Req.	DS-37	
C	Switch			Not Req.	Not Req.	SK3 *	Not Req.	Power Off-On
R2	3meg	½	63-4455	TT-84	B47-3meg-S	SLC-3	SU-59	Focus
R3A	1meg	½	63-4488	B-70	A47-1meg-S	QJ3-137	U53	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	750K	½	63-4486	B-56	A47-750K-S	QJ1-136	U54	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5	5meg	½	63-4660	TT-87	B47-5meg-S	HLC-5	PTA5EL	Vert. Size (Height)
R6A	250K	½	63-4487	B-51	A47-250K-Z	QJ3-130	U44	Brightness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R7	30K	½	63-4489					Contrast
	10K Tap							
R8	2000Ω	2(WW)	63-4784	WN-152	39-1500	112-1500	FL-1K	Vert. Linearity
	850Ω Stop			**	**	**	**	
R9A	10K	½	63-4095	TT-14	B47-10K-S	B11-116	TA4L	AGC
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R10	750Ω	2(WW)	63-3284	WN-751	39-800	112-650	FL-750	Buzz Control
	100Ω Stop			†	†	†	†	
R11A	3meg		63-4012	TT-87	A47-3meg-Z	B13-141	PTA5EL	Fringe Lock (Sync Stab)
B	Shaft			Not Req.	FKS-1/4	TM4	Not Req.	

† Use 100Ω, 2W Resistor in series with terminal.
** Use 830Ω, 2W Resistor in series with terminal.
* Factory assembled part #PPQ11-137 (SK8).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	2.2meg			
R13	33K			
R14	10K			
R15	680K			
R16	27K			
R17	56Ω			
R18	56K			
R19	56K			
R20	1500Ω			
R21	220Ω			
R22	220Ω			
R23	22Ω			
R24	12K			
R25	270K			
R26	3300Ω			
R27	1000Ω			
R28	1800Ω			
R29	36K			(27K) *
R30	330Ω			
R31	22K			
R32	100K			
R33	68K			
R34	15K			
R35	27K 2W			
R36	15Ω			
R37	7500Ω 5W	PW5-7500	5W-SQ-7500	
R38	3900Ω			
R39	330K			
R40	39K			
R41	82K			
R42	15K			
R43	470K			
R44	470K 1W			
R45	330K			
R46	3.3meg			
R47	680K			
R48	10meg			
R49	22K 2W			
R50	82K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R51	150K			
R52	220K			
R53	100K			
R54	470K 1W			
R55	680Ω			
R56	390K			
R57	27K 2W			
R58	1000Ω 1W			
R59	680Ω 1W			
R60	100K			
R61	47K			
R62	39K			
R63	330K			
R64	2.2meg			
R65	1000Ω			
R66	2.2meg			
R67	82K			
R68	560Ω			
R69	560Ω			
R70	330K			
R71	330K			
R72	1meg			
R73	120K			
R74	100K			
R75	100K			
R76	10meg			
R77	130K 2W			
R78	47K			
R79	18K			
R80	1meg			
R81	100Ω			
R82	100Ω			
R83	8200Ω 3W	PW3-8200	3G-8200	
R84	100K			
R85	1000Ω			
R86	5.2Ω			
R87	22K			
R88	230K			

* Alternate

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1A	1st Video IF	S-52410 ①	TV-132	6226	RTC-8636	T118	①Complete Assembly #S-52437.
B	41.25MC Trap			6226	RTC-8636	T219	
L2A	39.75MC Trap	S-41883	TV-152	6225	RTC-8556	T219	②Complete Assembly #S-47987.
B	47.25MC Trap		TV-153	6225	RTC-8556	T219	
L3A	2nd Video IF	S-41889		6222	RTC-8553	T225	③Wound on 8200Ω Resistor.
B	47.25MC Trap						
L4	3rd Video IF	S-51643	TV-130	6224	RTC-8555	T217	④Complete Assembly #S-49892.
L5	4th Video IF	S-47968 ②					
L6	Peaking (90uh)	S-41879	TV-181	6177	RTC-8594	T304	⑤Wound on 5600Ω Resistor.
L7	RF Choke (6.7uh)	S-21888	BC-565	4610	RTC-8520	T859	
L8	Peaking (175uh)	S-52645 ③	TV-184 *	6180 *	RTC-8597 *	T310 *	⑥Complete Assembly #S-43717.

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L9A	4.5MC Trap	S-50341 ④	TV-120	1482 IFT	RTC-9056	T253	
B	1st Sound IF						
L10	Peaking (350uh)	S-46011	TV-185	6181	RTC-8598	T315	* Parallel with 8200Ω Resistor.
L11	Peaking (170uh)	S-43618 ⑤	TV-184 ▲	6180 ▲	RTC-8597 ▲	T310 ▲	▲ Parallel with 5600Ω Resistor.
L12	2nd Sound IF	S-41899 ⑥	TV-149				
L13	Quadrature	S-47702	TV-121	1480	RTC-8605	T251	
L14	RF Choke (10uh)	S-22777	BC-566	4612	RTC-8522	T860	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L15	Horiz. Osc. (Horiz. Hold)	S-47150 ①							

① Part #S-47149 used in some versions.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L16	.300A	55Ω	1.1 Hy.	95-1682	C-2996	C-2343	26C44	C-34X	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1.8A	520VCT ② .305A DC	3V ③ 3A	95-1824				R-92A	
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ④ 6.2A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	95-1656	A-3033 ①	A-8148 ①	Y-39 ②	A-131X	① Cut and tape green lead.
T3	Yoke (Horiz. 13MH) 92° (Vert. 45MH)	95-1785	MDF-124	DY-39A ②		Y-82-1	② Connect same as original (Use original 1K ½W Resistor and Thermal Resistor).
T4	Horiz. Output	S-49918	HVO-187			D-201	
	Rear Cover and Centering Device	S-23237					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	8600Ω	3-4Ω	95-1569	A-2900	A-3850	24S52	S-18Z	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	49-856 ①	5A1	① Model G3388W (2 used).
	12"	PM	6-8Ω	49-852 ②	12ARPA	② Model G3386W (2 used).
	6" x 9"	PM	3-4Ω	49-851 ③ ⑤	69A3	③ Used in Models G2762W, WU; G3353E, W; G3354M, R.
				49-945 ④		④ Used in Models G2715Y, YU; G2717E, R, W, EU, RU, WU,
	4"	PM	14-16Ω	49-918 ⑤	4AI5Z14	G3310E, R, W; G3311R, W, Y.
	5" x 7"	PM	6-8Ω	49-893 ⑥	5TAI26.5	⑤ Used in Models G2755H, M, R, W, HU, MU, RU, WU.
						⑥ Used in Models G2756E, R, W, EU, RU, WU (2 used).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Vert. Integrator		87-8	
K2	Vert. Feedback		87-7	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M1	3AG	5A 125V 3/8	136-46		313005 (3AG 5A 125V 3/8)	357001	MDX5	4405
M2	N	7/10A 250V 5/8	136-38		633.700 (N 7/10A 250V 5/8)	346010	N 7/10	HN 1/2 to 3/4
M3	1 1/2" minimum length #24 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ZENITH PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M4		103-20 *	6GG1 *		*Dual Selenium, Common Cathode Type
M5		103-23 *		1N295 *	*Crystal Diode, Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M6	Tuner *	175-166 or 175-304	VHF
	Tuner *	175-172	VHF
	Tuner *	175-142 or 175-302	VHF
	Tuner *	175-172 or 175-306	VHF
	Tuner *	175-171	VHF with UHF Provisions
	Tuner *	175-141 or 175-301	VHF with UHF Provisions
	Tuner *	175-8	UHF
M7	Spark Gap	52-967	
M8	Switch	S-44018	Channel Selector (Located on TV Escutcheon, Pushbutton Type)
M9	Motor Switch Assembly	S-41498	

* See Page 1 for Models

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY

ITEM No.	ZENITH PART No. CARTRIDGE	NEEDLE*	ASTATIC PART No. CARTRIDGE	NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	NEEDLE*	SONOTONE PART No. CARTRIDGE	NEEDLE*	NOTES
M10			17	Not Req.	26S	2604 * 2605 * (78RPM)	8TA4-S	N-8TA-S *	

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor)
	8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
	8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8486 (Round) - 8 Conductor

REMOTE CONTROL RECEIVER S-51774, S-51864
PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC ◆ USE	TYPE	ITEM No.	RAYTHEON ◆ SYLVANIA ◆ USE	TYPE
V15	1st 40KC Amp.	6AU6	V20	Vol. Step - Mute Disc.	6AL5
V16	2nd 40KC Amp.	6AU6	V21	CCW Channel Sel. - Mute Relay Control Amp.	6CM7
V17	Limiter - Tripler	6AU6			
V18	Channel Sel. Disc.	6AL5	V22	Rectifier	5Y3GT
V19	Vol. Step - CW Channel Sel. Relay Control Amp.	6CM7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C84	10	350	22-2943	PRS620	BH1045	TC52	TD-10-450	TVA-1604	
C85	8	50	22-2941	PRS310	BBR3-150	TC30	TD-8-50	TVA-1303	
C86	4	200NP	22-3893	PRS7750		TC51 †		TVANB-1602 *	

† Use two units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C67	.01			BPD-01	CCD-103	BYA10S1	CCD-103	B-110	5HK-S10
C68	100			DI-100	CCD-101	L10T1	CCD-101	GP310	10TS-T10
C69	.01			BPD-01	CCD-103	BYA10S1	CCD-103	B-110	5HK-S10
C70	.01			BPD-01	CCD-103	BYA10S1	CCD-103	B-110	5HK-S10
C71	680	10%		1469-00068		5R5T68	CM-19B-681K	MCJ349	M3-368
C72	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C73	9	NPO 10%		NPO-DI 10	DTZ-10	C10V9C	CCTN-100	CNO-410	10TCC-V10
C74	680	10%		1469-00068		5R5T68	CM-19B-681K	MCJ349	M3-368
C75	100	10%		1469-0001	TCZ-100	2SR5T1	CM-19B-101K	MCB235	M3-310
C76	680	10%		1469-00068		5R5T68	CM-19B-681K	MCJ349	M3-368
C77A	.001	10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001	10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10

ZENITH CHASSIS 16G22, Q, U, 5G29, S-51774, S-51863, S-51864

FOLDER 2

REMOTE CONTROL RECEIVER S—51774, S—51864

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C78	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C79	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C80	680 10%		1469-00068		5R5D1	CM-19B-681K	MCJ249	MS-368
C81	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-310
C82	680 10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C83A	.001 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
B	.001 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C84	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C85	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C86	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C87	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C88	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R89	1.5meg			
R90	150K			
R91	470K			
R92	1.2meg			
R93	68K			
R94	100K			
R95	1meg			
R96	47K			
R97	100Ω			
R98	2.2meg			
R99	2.2meg			
R100	1meg			
R101	2.2meg			
R102	2.2meg			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R103	1meg			
R104	2.2meg			
R105	2.2meg			
R106	1meg			
R107	2.2meg			
R108	2.2meg			
R109	1meg			
R110	330K			
R111	47K			
R112	100Ω 10W	PW10-100	10W-SQ-100	
R113	10K			
R114	22K			
R115	3300Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L17	39. KC IF	S-43725					
L18	Discriminator(Pri)	S-24788					
L19	Discriminator(Sec)	S-24789					
L20	Discriminator(Pri)	S-24788					
L21	Discriminator(Sec)	S-24789					

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	117V ⓐ .3A	220V ⓐ .020A DC (Tap ⓐ 35V ⓐ .0015A DC) (Tap ⓐ 6.3V ⓐ 2.8A)	95-1612					
	SEC. 2							
	5V ⓐ 2A							

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES	
	CURRENT (Measured)	ZENITH PART No.	RCA PART No.	SARKES TARZIAN PART No.		
M11	.0015A	212-21 †	1N1763 ‡	Model 12 †	† Selenium	‡ Silicon

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M12	3AG	3/4A 250V S/B	136-41		313.750 (3AG 3/4A 250V S/B)	357001	MDL 3/4	4405

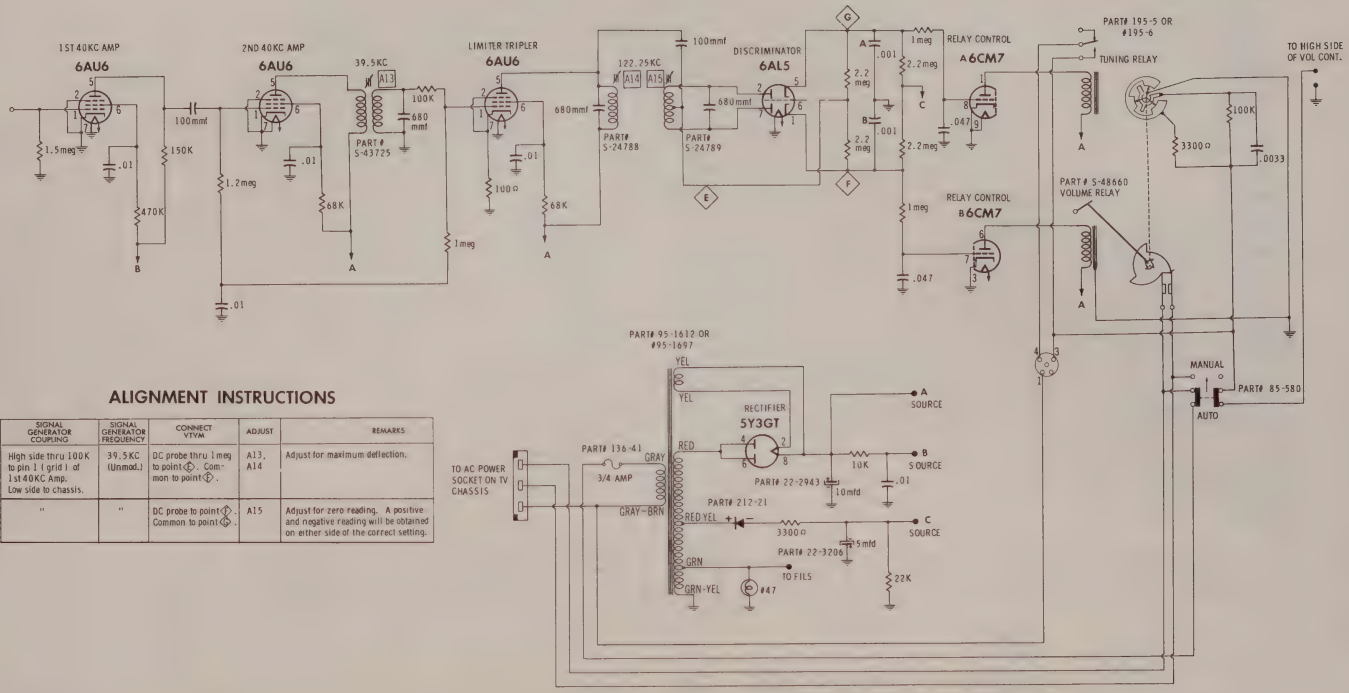
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M13	Switch	85-580	Auto-Manual (DPDT Slide Type)
M14	Relay	195-5 or 195-7	CCW, Channel Selector
M15	Relay	S-43723	Step, Volume (Includes Switch Part #S-43854 & S-43926)
M16	Relay	195-5 or 195-7	CW, Channel Selector
M17	Relay	S-24705	Sound, Bi-Stable, Muting

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO.	G2715Y, U	G2717E, U	G2717R, U	G2717W, U	G2755H, U	G2755M, U	G2755R, U	G2755W, U	G2756E, U	G2756R, U	G2756W, U	G2762W, U	G3310E	G3310R	G3310W	G3311R	G3311W	G3311Y	G3353E	G3353W	G3354M	G3354R	G3388W
Knob-VHF Channel Selector	46-2703		X																						
Knob- "	46-2695			X	X	X	X	X	X	X	X	X	X												
Knob- "	46-2511													X											
Knob- "	46-2551														X	X	X	X	X	X					
Knob- "	S-47420														X	X	X	X	X	X					
Knob- "	S-50517																				X	X	X	X	X
Knob-UHF Channel Selector	S-48229		X	X	X	X	X	X	X	X	X	X	X	X											
Knob-UHF Channel Indicator	S-48228		X	X	X	X	X	X	X	X	X	X	X	X											
Knob-Fine Tuning	S-51956		X																						
Knob- "	S-51893			X	X	X	X	X	X	X	X	X	X												
Knob- "	S-49930													X											
Knob- "	S-51867														X	X	X	X	X	X					
Knob- "	S-44006																				X	X	X	X	
Knob- "	46-2035																								X
Knob-Volume	S-45716		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X
Knob- "	S-46726													X							X	X	X	X	
Knob- Brightness, Tone, Vert. Hold	S-50939		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Contrast	S-51728		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X					
Knob- "	S-50935													X							X	X	X	X	X
Knob-Horizontal Hold	46-2509		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cabinet	14-3464		X																	X					
Cabinet	14-3467			X											X										
Cabinet	14-3466				X											X		X							
Cabinet	14-3465					X											X		X						
Cabinet	14-3530						X																		
Cabinet	14-3529							X																	
Cabinet	14-3528								X																
Cabinet	14-3527									X															
Cabinet	14-3509										X														
Cabinet	14-3508											X													
Cabinet	14-3507												X												
Cabinet	14-3526													X											
Cabinet	14-3525																				X				
Cabinet	14-3524																					X			
Cabinet	14-3356																						X		
Cabinet	14-3354																							X	
Cabinet	14-3640																								X



ALIGNMENT INSTRUCTIONS

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru 100K to pin 1 (grid) of 1st 40KC Amp. Low side to chassis.	39.5KC (Unmod.)	DC probe thru 1 meg to point ◇. Common to point ◇.	A13, A14	Adjust for maximum deflection.
2.	"	"	DC probe to point ◇. Common to point ◇.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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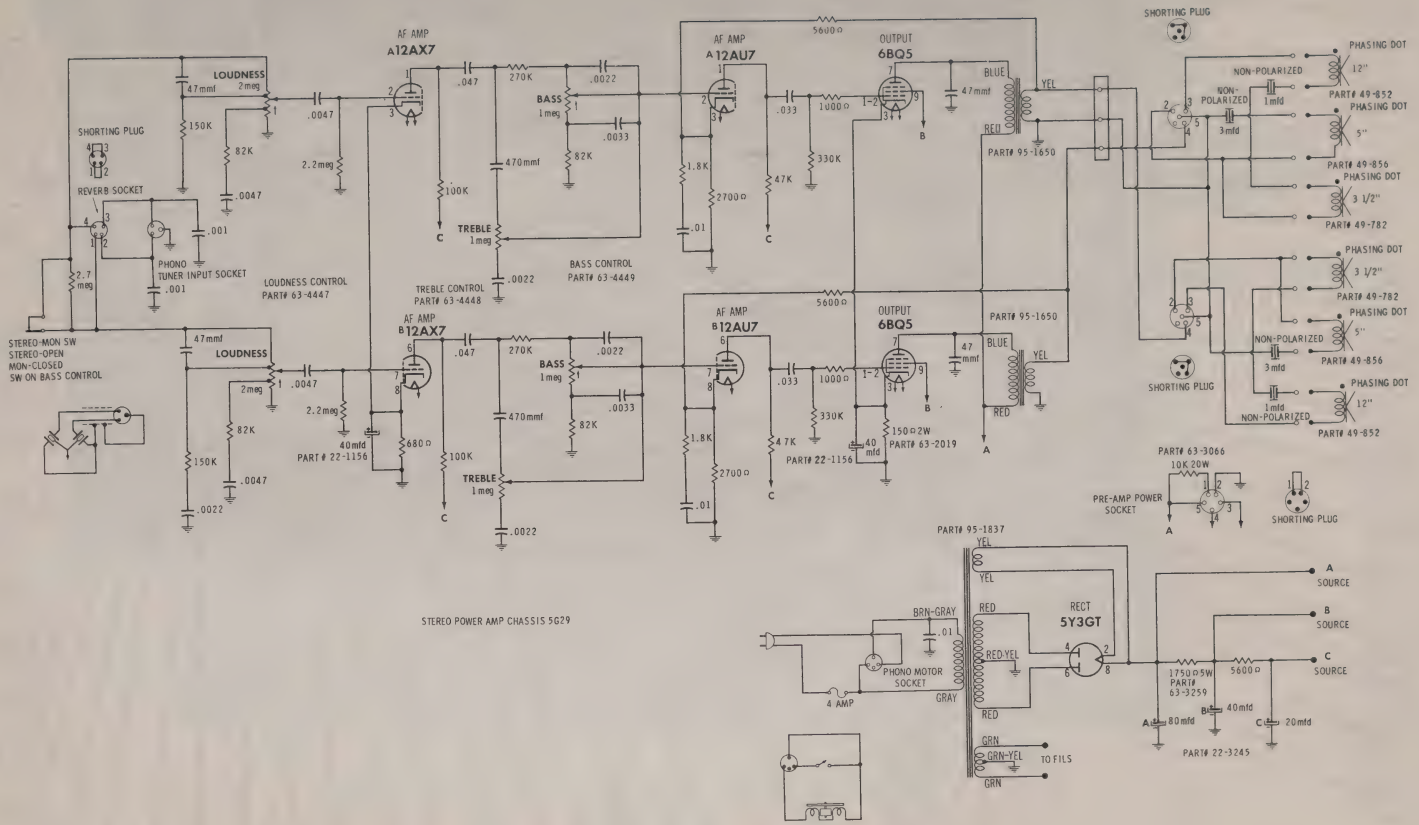
REMOTE CONTROL RECEIVER S-51863



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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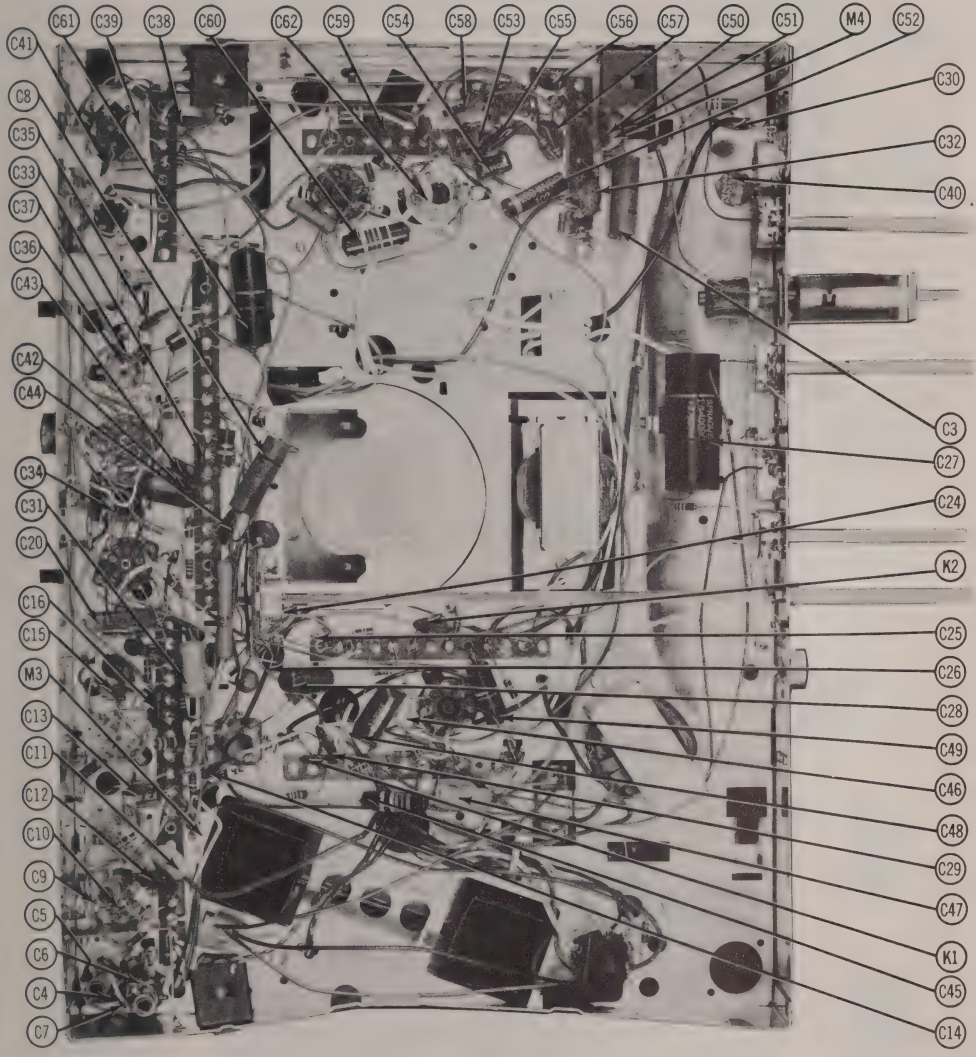
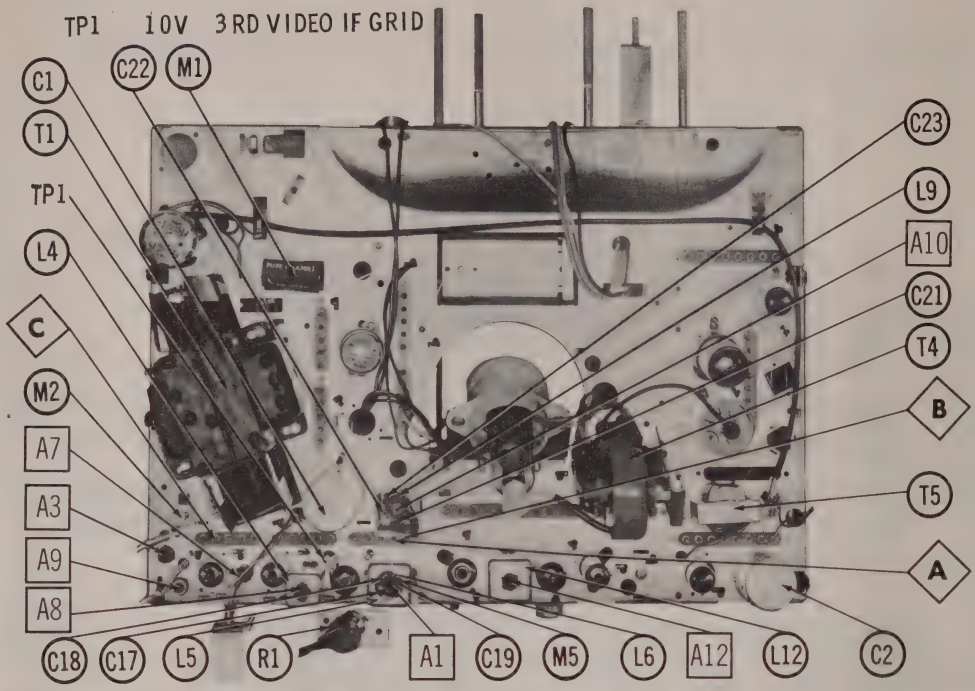
AUDIO AMP CHASSIS 5G29

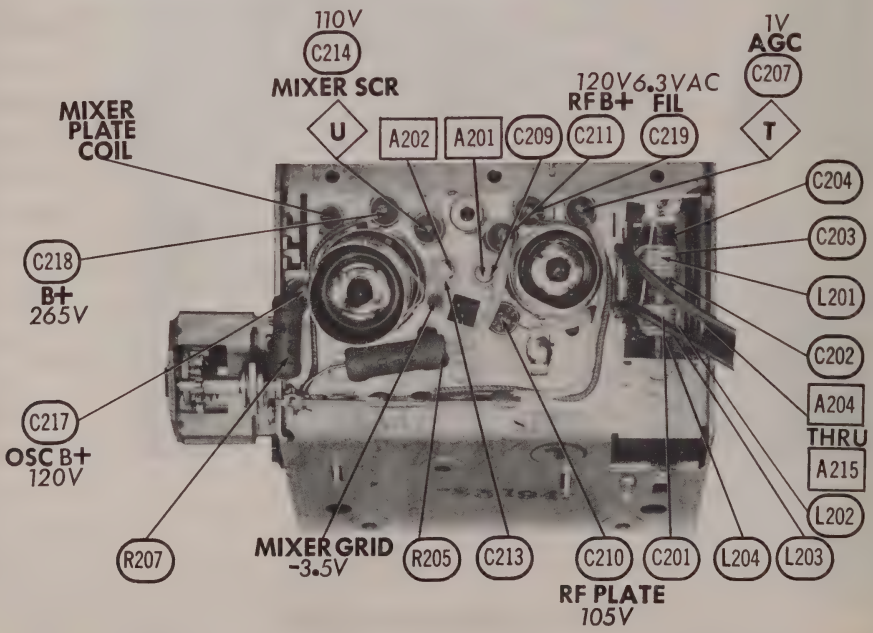
ZENITH CHASSIS 16622, Q, U, 5G29, S-51774, S-51863, S-51864



TV CHASSIS BOTTOM VIEW
CAPACITOR, MISC. IDENT.



TV CHASSIS - TOP VIEW



VHF TUNER 175-166 - TOP VIEW

VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202 ..... GENERAL CEMENT #9211

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF antenna terminals thru 300Ω matching transformer.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	"	"	"	Vert. Amp. across Video Detector load.	A203	Increase bias at point (T) to -20V. Adjust position of A203 (capacitor wire) to obtain MINIMUM amplitude of response on scope.
3.	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (U). Low side to chassis.	A204	Decrease bias to -2.5 volts. Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
		207MC	205.25MC 209.75MC	12		A205	
		201MC	199.25MC 203.75MC	11		A206	
		195MC	193.25MC 197.75MC	10		A207	
		189MC	187.25MC 191.75MC	9		A208	
		183MC	181.25MC 185.75MC	8		A209	
		177MC	175.25MC 179.75MC	7		A210	
		85MC	83.25MC 87.75MC	6		A211	
		79MC	77.25MC 81.75MC	5		A212	
		69MC	67.25MC 71.75MC	4		A213	
		63MC	61.25MC 65.75MC	3		A214	
		57MC	55.25MC 59.75MC	2		A215	

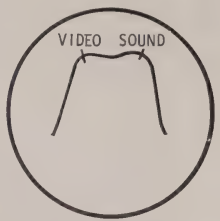
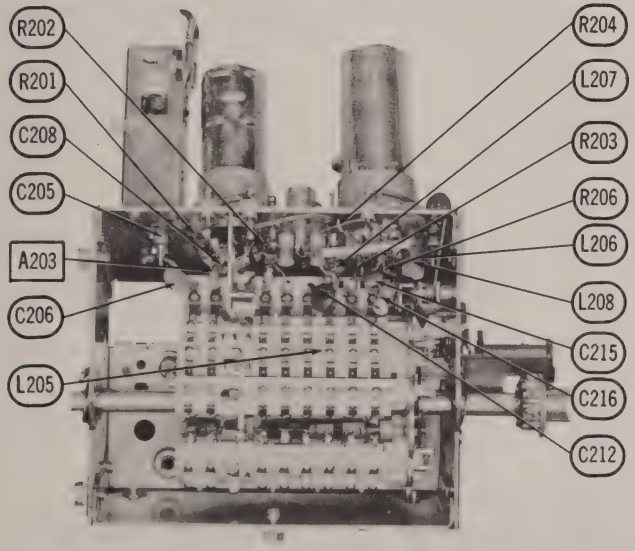


FIG. 201

VHF OSCILLATOR ALIGNMENT

Oscillator adjustment slugs are adjusted by turning Fine Tuning.

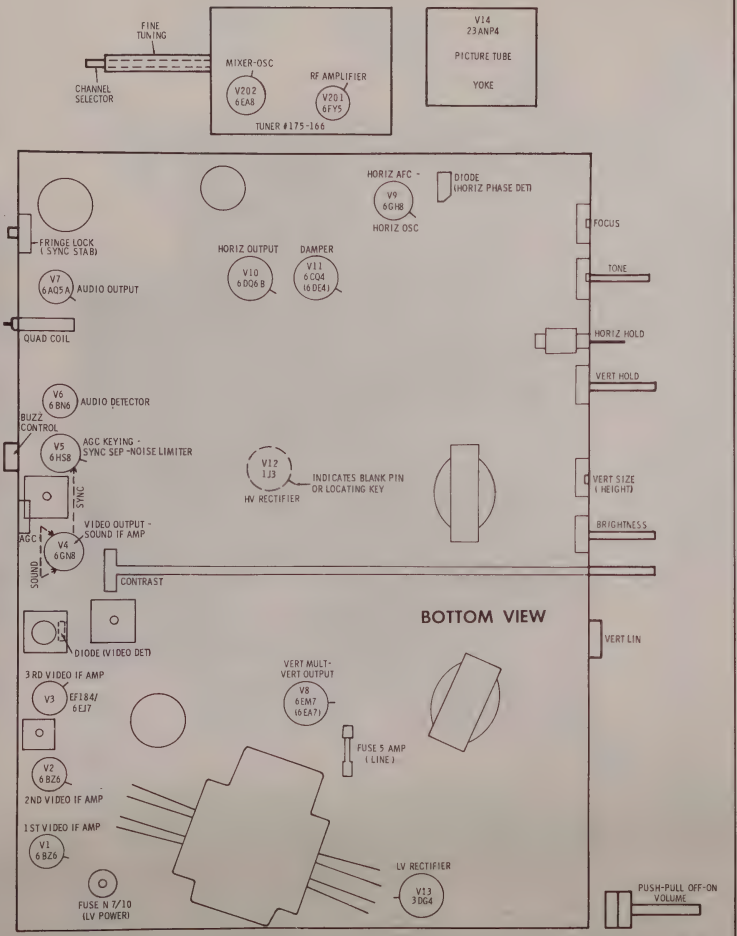


VHF TUNER 175–166 —BOTTOM VIEW

ZENITH CHASSIS 16G22, Q, U,
5G29, S-51774, S-51863, S-51864

FOLDER 2

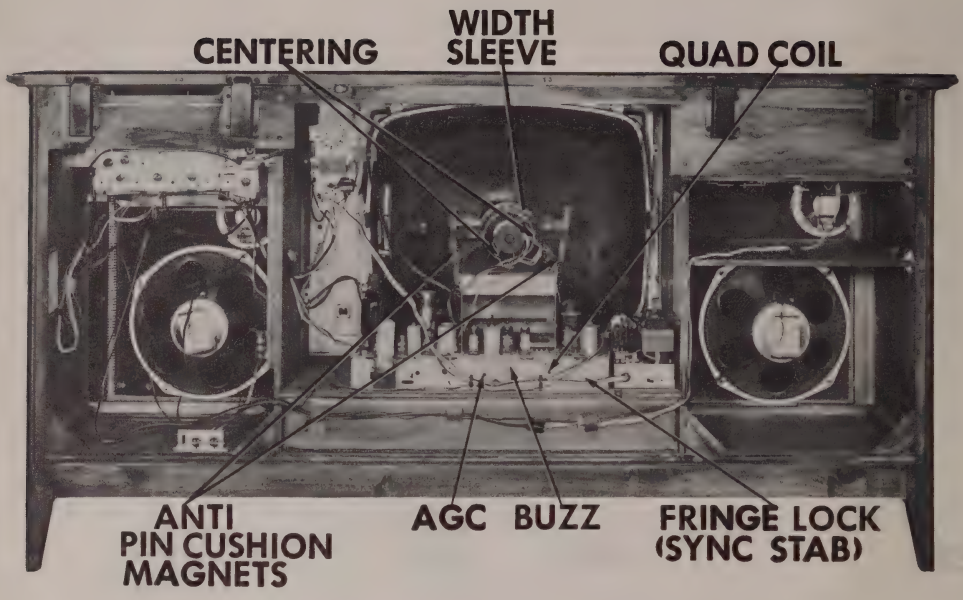
TUBE PLACEMENT CHART



TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.4meg	1500Ω	FIL	FIL	▲220Ω	▲220Ω	1500Ω		
V2	6BZ6	33K	INF	FIL	FIL	†275Ω	†275Ω	▲22Ω		
V3	EF184 6EJ7	1000Ω	12K	NC	FIL	FIL	0Ω	†3300Ω	†3300Ω	0Ω
V4	6GN8	0Ω	100K	†470K	FIL	FIL	15Ω	2100Ω	†27K	†6500Ω
V5	6HS8	● 9000Ω	†22K	690K	FIL	FIL	230K	†1.2meg	†80K	†10meg
V6	6BN6	● 300Ω	.1Ω	FIL	FIL	†27K	3.7Ω	†390K		
V7	6AQ5A	50K	680Ω	FIL	FIL	†1850Ω	†1000Ω	NC		
V8	6EM7	2.2meg	†415Ω	●1200Ω	●700K	●†5.8meg	0Ω	FIL	FIL	
V9	6GH8	†100K	100K	†47K	FIL	FIL	†120K	110Ω	0Ω	1.5meg
V10	6DQ6B	TP	FIL	TP	†8300Ω	1meg	NC	FIL	0Ω	TOP CAP †9Ω
V11	6CQ4	NC	NC	3meg	NC	†56Ω	NC	FIL	FIL	
V12	1J3		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP †280Ω
V13	3DG4	¶ 30K	NC	¶ 30K	TP	23Ω	NC	21Ω	TP	
V14	23ANP4	FIL	15K	Pin 6 ●3 meg	Pin 10 31K	Pin 11 ●150K	Pin 12 FIL			
V201	6FY5	0Ω	3meg	FIL	FIL	†9200Ω	0Ω	0Ω		
V202	6EA8	†18K	220K	†100K	FIL	FIL	†57Ω	0Ω	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 3 OF V13. ▲ MEASURED FROM PIN 2 OF V2.
‡ MEASURED FROM PIN 3 OF V11. NC NO CONNECTION TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

The Horizontal Hold is equipped with a stop which limits rotation to approximately 270° with the knob on the shaft. To adjust, remove the knob and adjust by turning the shaft until the picture is synchronized to the point where it is virtually impossible to disrupt horizontal synchronization when switching from channel to channel. Install the knob with its pointer centered between the stops.

DISASSEMBLY INSTRUCTIONS

REMOTE CONTROL CHASSIS REMOVAL S-51774

1. Remove 8 wood screws in rear cover. Remove rear cover.
2. Remove 3 chassis bolts.
3. Disconnect power plugs and pull chassis straight out.

TV CHASSIS & PICTURE TUBE ASSEMBLY REMOVAL MODEL G3388W

1. Remove 4 chassis bolts and 4 screws holding picture tube bracket.
2. Remove 1 push-on type knob on front panel.
3. Remove 2 screws holding switch and volume control bracket; lower bracket down.
4. Remove 4 screws holding VHF tuner bracket and lower bracket down.
5. Remove 2 screws holding channel selector switch; remove switch.
6. Disconnect speaker heads.
7. Remove chassis and picture tube assembly.

PHOTOFACT® Folder

**PRODUCTION CHANGE
BULLETIN 270**

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 10 IN SET 537

LAFAYETTE MODEL HE-15A

Lafayette Models HE-15, HE-16, HE-18 were covered in PHOTOFACT Folder 10 - Set 537.

Model HE-15A is electrically similar except for the following changes.

COMPONENT CHANGES

V6 (6AU8) is changed to a type 6AW8.

R31 is decreased from 22K to 15K 1 watt.

The Mic. Input socket is changed from a 1 pin type to a 5 pin socket.

COMPONENTS ADDED

A RF Meter Jack is added. One side of the Meter Jack goes to ground. The center tap of the Jack connects to pin 1 of V6A. The other side connects to pin 6 of V6B. The wire connecting pins 1 and 6 of V6 is disconnected.

PRODUCTION CHANGE
BULLETIN 270

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 357

WESTINGHOUSE MODELS H-22T155A, H-22T156A, H-22TU155, A, H-22TU156, A (CH. V-2293-41, -504, V-2294-305)

Westinghouse Models H-22T155, H-22T156, H-22T157A (Ch. V-2293-11, -31) were covered in PHOTOFACT Folder 12 - Set 357.

Models H-22T155A, H-22T156A, H-22TU155, A, H-22TU156, A (Ch. V-2293-41, -405, V-2294-305) are electrically similar except for the following changes.

COMPONENTS CHANGED

R61 is decreased from 680K to 68K.

C68 is changed to 4700mmf @ 10% (Part #210V110M05).

R71 is changed from 15K 2 watt to 15K ½ watt.

R73 is increased from 15K 2 watt to 27K 1 watt.

R74 is increased from 1200Ω to 1800Ω.

R89 is increased from 2700Ω to 6800Ω.

R91 is increased from 680K to 1meg.

C114 is increased from 100mmf to 1000mmf.

L33 is decreased from 25 microhenries to 14 microhenries (Part #230V019M05).

R157 is decreased from 1.2 meg to 820K.

R185 is decreased from 100K to 820K.

R143 is increased from 3300Ω 4 watts to 3900Ω 4 watts (Part #251V014M10).

R136 is decreased from 470K to 330K 10%.

(Continued On The Reverse Side)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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COMPONENTS ADDED

A 1000mmf capacitor (Part #215V111A02) and a 33 microhenries choke (Part #230V019M11) in series is added from the junction of R8 and R148 to ground.

A 6800Ω $\frac{1}{2}$ watt resistor is added from pin 9 of V24A (6AW8A) to the junction of C113 and R153.

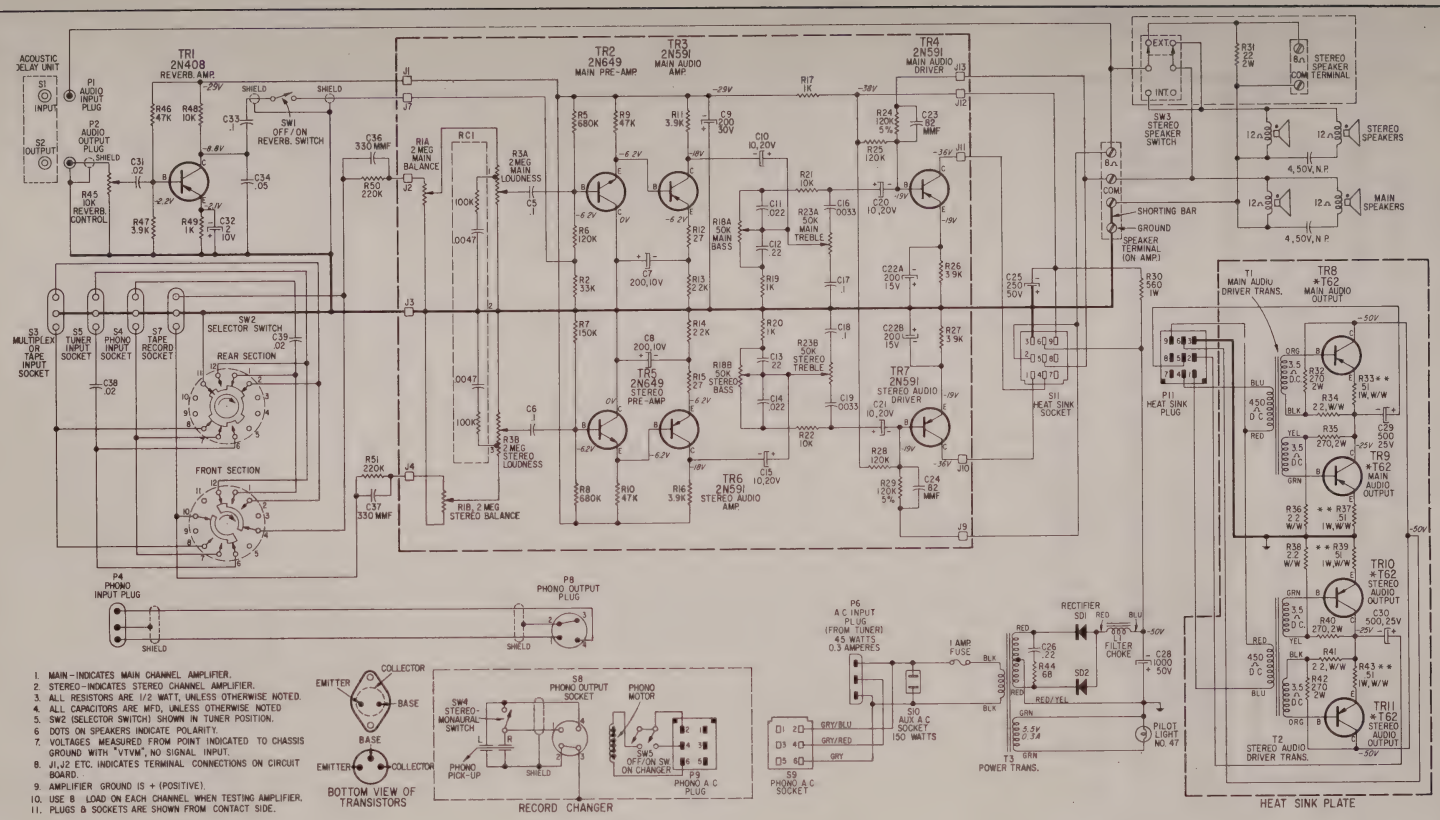
COMPONENTS DELETED

L13 is deleted.

R63 is deleted.

	Silvertone Models 1069, 1070, 1071, 1073, 1074, 1075, 1079, 1080, 1081, 1280, 1281, 1282, 1283 (Ch. 528.59560, 528.59850, 528.59851, 528.59860) were covered in PHOTOFACT Folder 13 - Set 535. Models 2083, 2084, 2085 (Ch. 528.54071, 528.59760) are electrically identical except for the following changes.
Ch. 528.59760	REVERBERATION AMPLIFIER ADDED A Transistor Reverb Amp is added. The Output Transistors are rearranged on a heat sink. The heat sink plugs into the main chassis. A schematic diagram showing these changes is given in this bulletin.

(Continued On The Reverse Side)



1. MAIN-INDICATES MAIN CHANNEL AMPLIFIER.
2. STEREO-INDICATES STEREO CHANNEL AMPLIFIER.
3. ALL RESISTORS ARE 1/2 WATT, UNLESS OTHERWISE NOTED.
4. ALL CAPACITORS ARE MFD, UNLESS OTHERWISE NOTED
5. SW2 (SELECTOR SWITCH) SHOWN IN TUNER POSITION.
6. DOTS ON SPEAKERS INDICATE POLARITY.
7. VOLTAGES MEASURED FROM POINT INDICATED TO CHASSIS GROUND WITH "VTVM", NO SIGNAL INPUT.
8. J1,J2 ETC. INDICATES TERMINAL CONNECTIONS ON CIRCUIT BOARD.
9. AMPLIFIER GROUND IS + (POSITIVE).
10. USE 8 LOAD ON EACH CHANNEL WHEN TESTING AMPLIFIER.
11. PLUGS & SOCKETS ARE SHOWN FROM CONTACT SIDE.

* Audio output transistors for both main and stereo sections carry supplementary color identification. Replacement output transistors are supplied only with white dot coding. Output transistors must be replaced in pairs (main output with main output, stereo output with stereo output) if the color dot on the transistors now in the chassis is other than white.

**When replacement becomes necessary for R33 and R37 or R39 and R43 they should be replaced in pairs using .51 ohm 1 watt resistors.

SILVERTONE CHASSIS 528.59760

Schematic Diagram Courtesy of Sears, Roebuck & Company

PHOTOFACT® Folder with CIRCUITRACE®

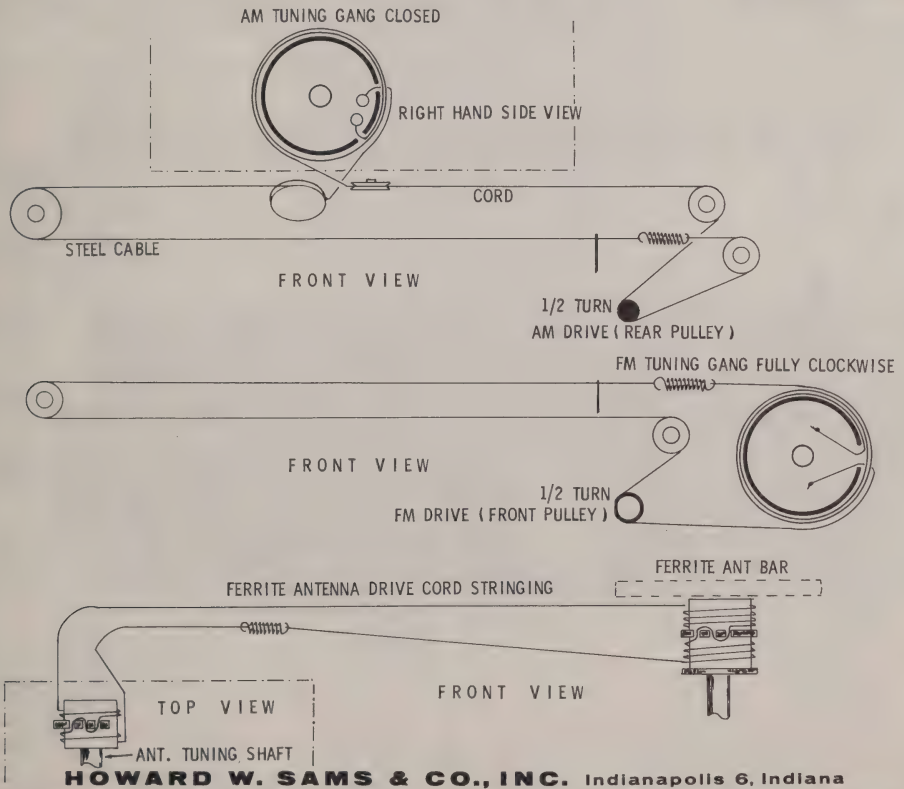
BLAUPUNKT MODELS Granada 61 (20303), Sultan (20203)

BLAUPUNKT MODELS Granada 61 (20303), Sultan (20203)

MODEL Granada 61 (20303)

TRADE NAME	Blaupunkt Models Granada 61 (20303), Sultan (20203)		
IMPORTER	N. Pickens Import Co., 64-01 Woodside Ave., Woodside 77, N. Y.		
TYPE SET	AC Operated 6 Tube FM-BC-SW Receiver		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	50 Watts, .5 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	515-1620KC	FREQ. MOD.	88-108MC SHORT WAVE 5.95 - 18.2MC

DIAL CORD STRINGING



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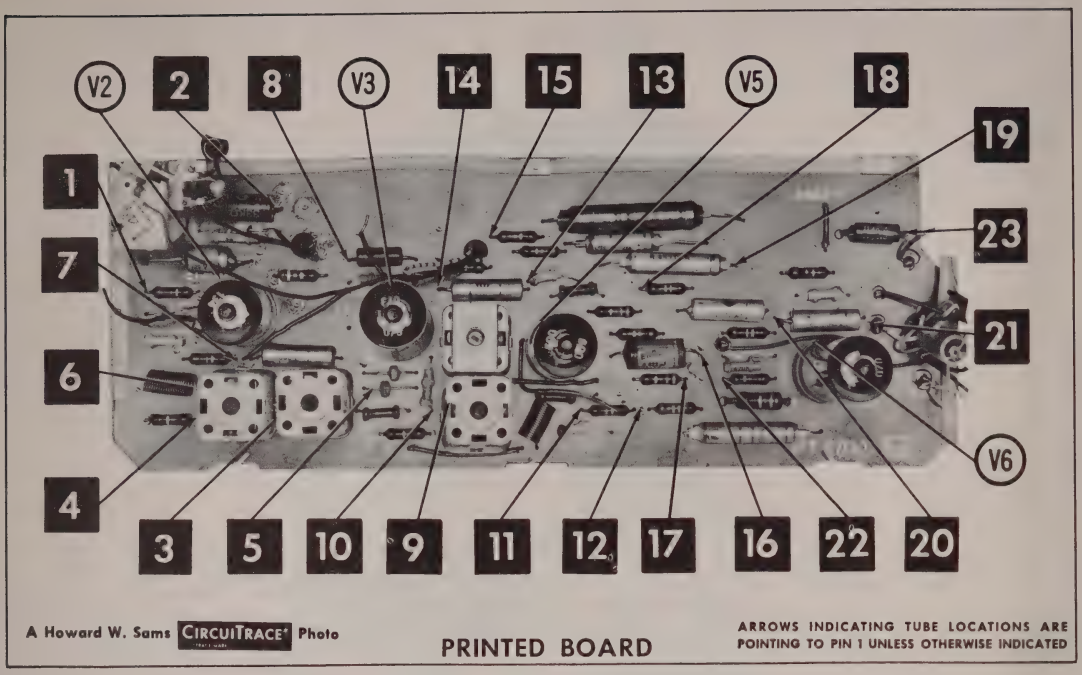
KK746

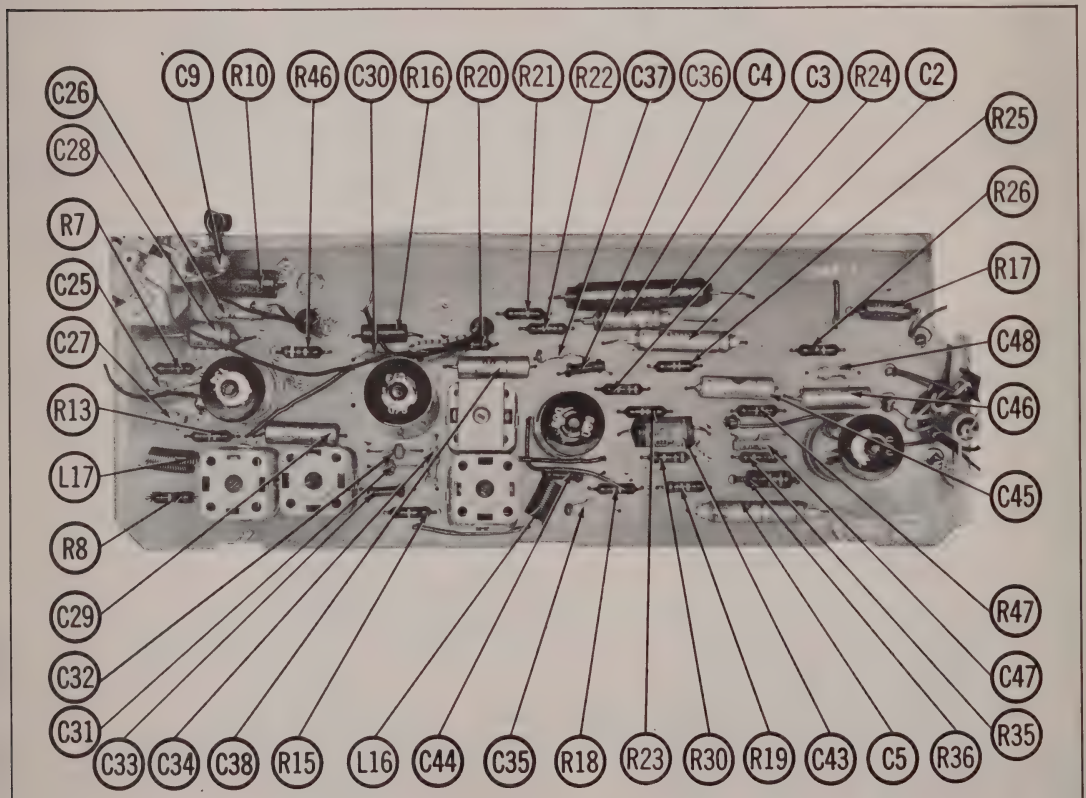
SET 552 FOLDER 4



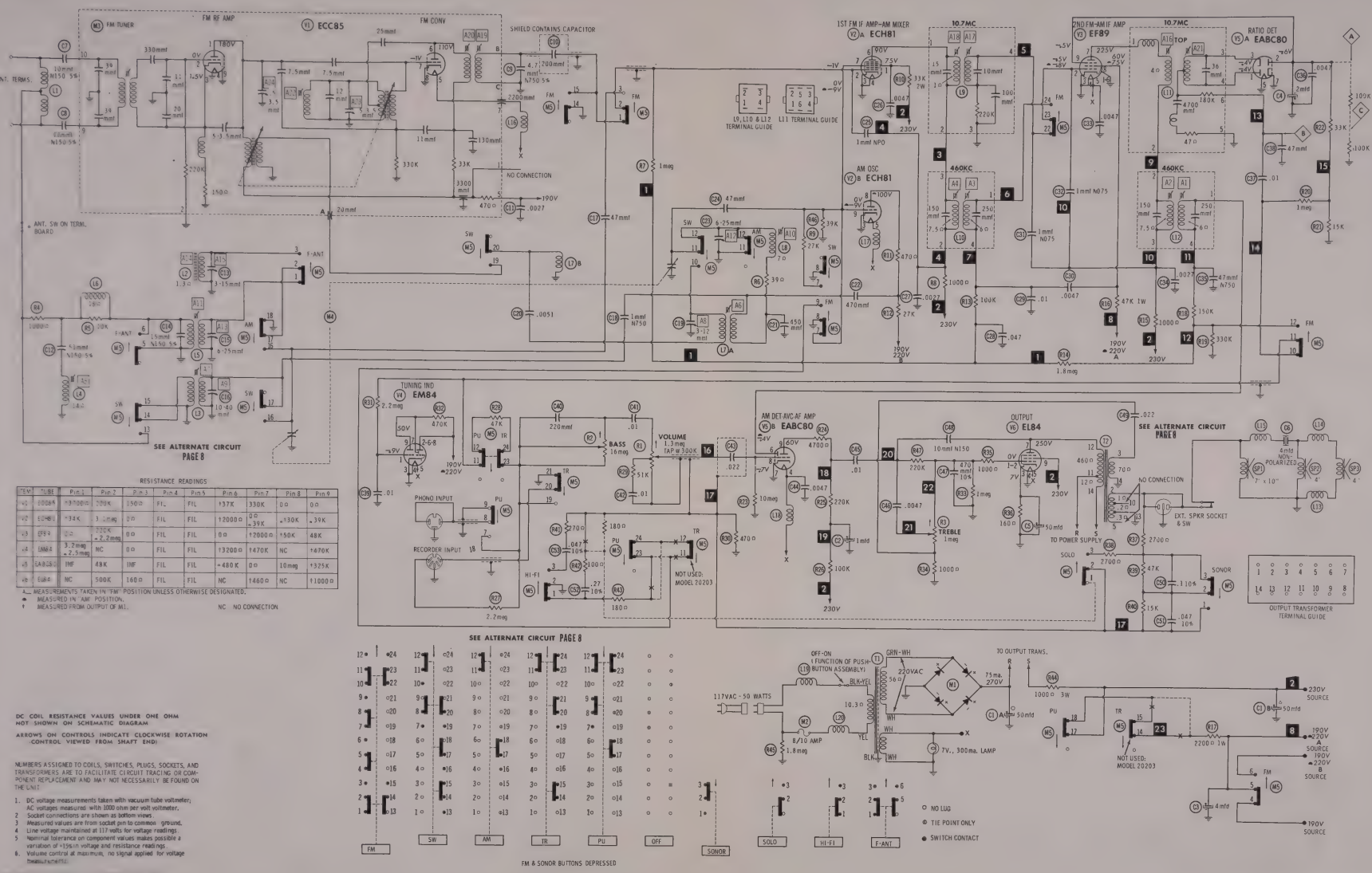
A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD



RESISTANCE READINGS

TERM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†3700Ω	200K	150Ω	FIL.	FIL	†37K	330K	0Ω	0Ω
V2	ECH81	†34K	3.2meg	0Ω	FIL	FIL	†2000Ω	0Ω ▲39K	▲130K	▲39K
V3	EF89	0Ω	330K ▲2.2meg	0Ω	FIL	FIL	0Ω	†2000Ω	†50K	48K
V4	EM84	3.2meg ▲2.5meg	NC	0Ω	FIL	FIL	†3200Ω	†470K	NC	†470K
V5	EABC80	INF	48K	INF	FIL	FIL	▪480K	0Ω	10meg	†325K
V6	EL84	NC	500K	160Ω	FIL	FIL	NC	†460Ω	NC	†1000Ω

▲ MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▪ MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

○ NO LUG
⊙ TIE POINT ONLY
● SWITCH CONTACT

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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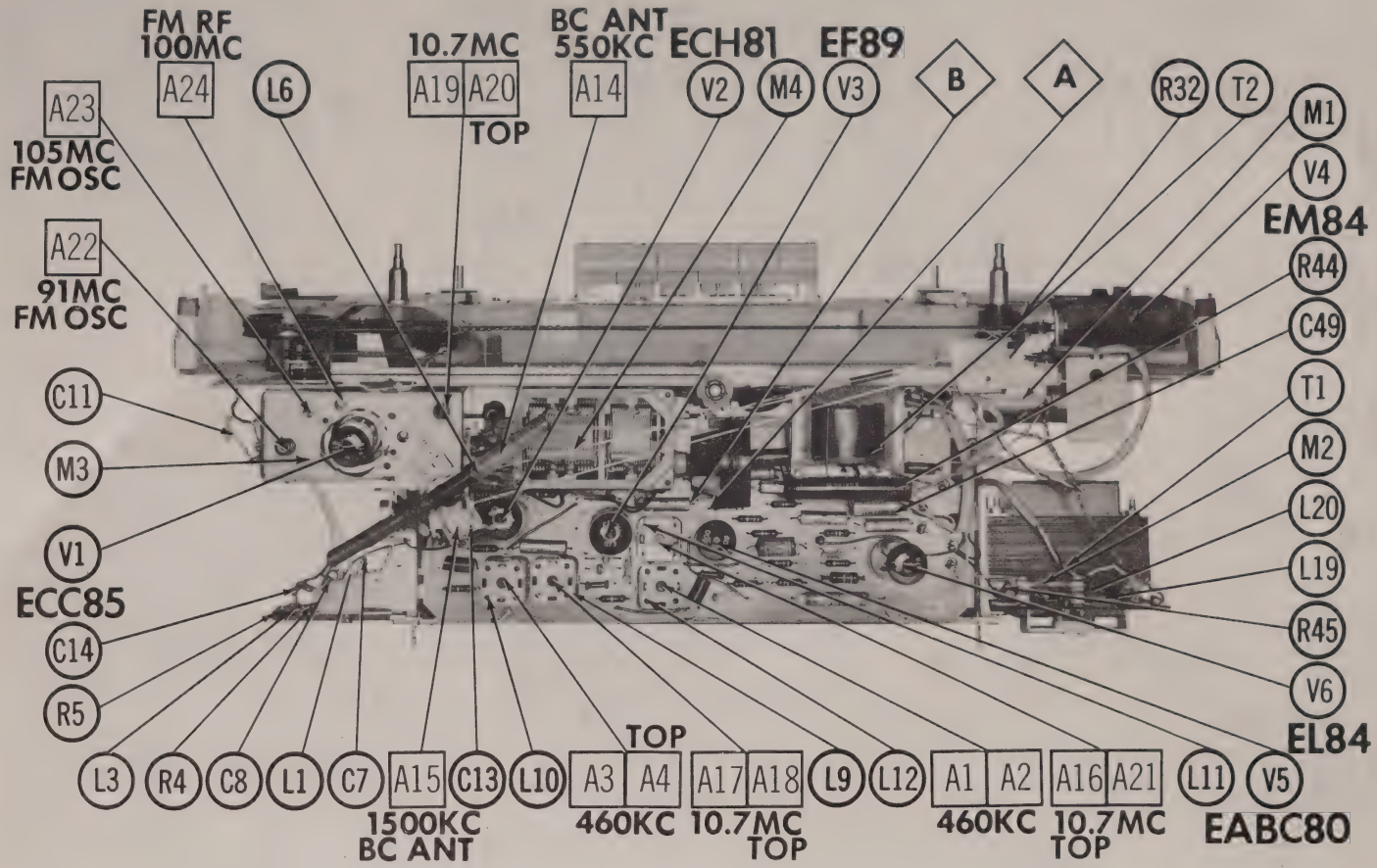
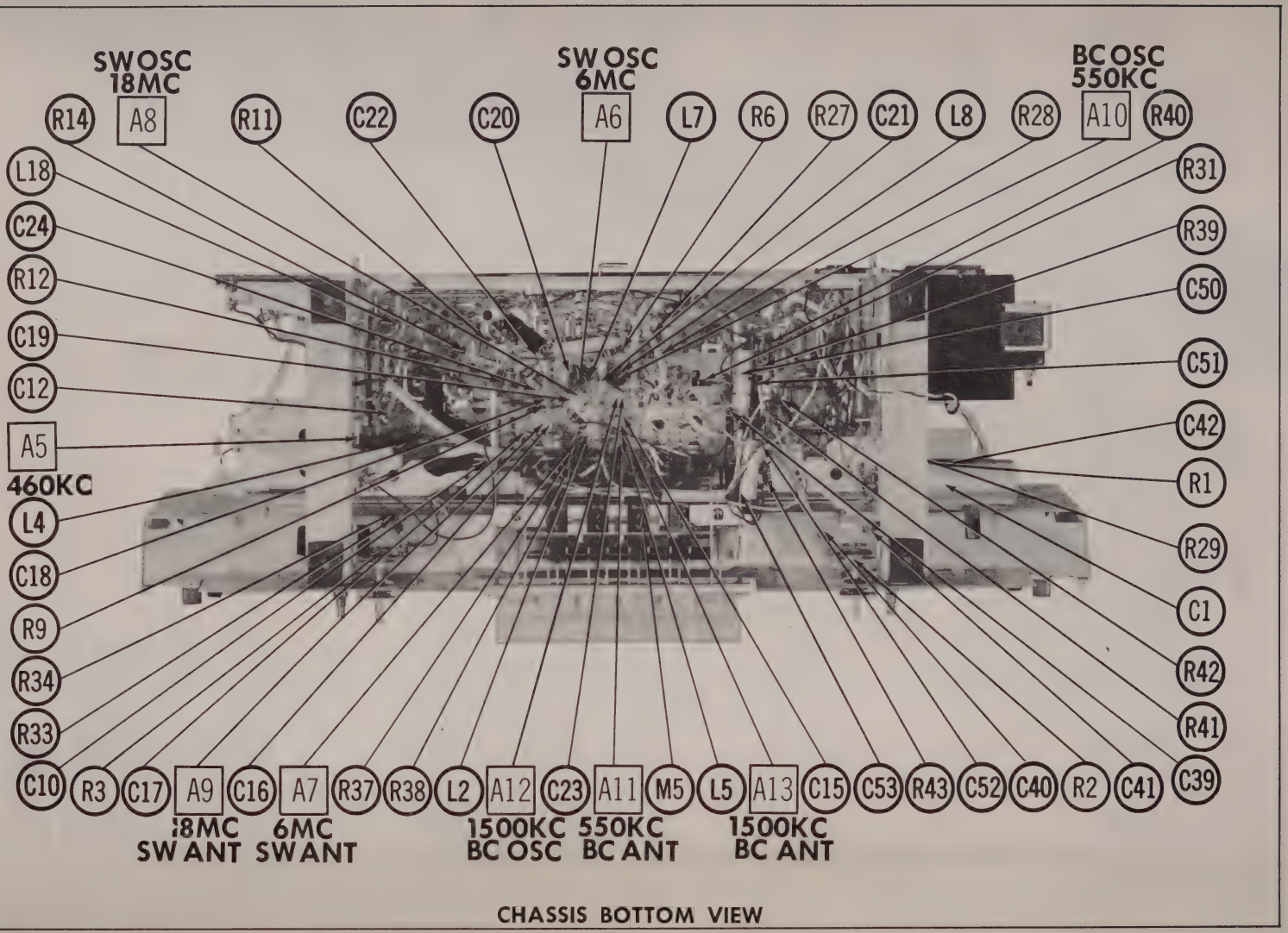
BLAUPUNKT MODELS Granada 61 (20303), Sultan (20203)



CHASSIS TOP VIEW

BLAUPUNKT MODELS Granada
61(20303), Sultan (20203)



CHASSIS BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Set Short Wave Bandspread Pointer to "O".
Suggested Alignment Tools:
A1 thru A4 ..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5, A6, A7, A10, A11, A19, A20 .. GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A8, A9, A12, A13, A15, A23, A24 GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A16, A17, A18, A21, A22 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	460KC (400~ 30% AM)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side thru .01mfd to AM external antenna terminal. Low side to chassis.	"	600KC	"	A5	Adjust for MINIMUM output.
3.	"	6MC	(SW) 6MC	"	A6, A7	Adjust for maximum output.
4.	"	18MC	18MC	"	A8, A9	"
5.	"	550KC	(AM) 550KC	"	A10, A11	"
6.	"	1500KC	1500KC	"	A12, A13	Adjust for maximum output. Repeat Steps 3 thru 6.
7.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550KC	(AM & F Ant.) 550KC	"	A14	Adjusted for maximum output by moving coil along ferrite core.
8.	"	1500KC	1500KC	"	A15	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	High side to an ungrounded tube shield over FM Conv. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A16, A17, A18, A19, A20	Adjust for maximum deflection.
10.	"	"	"	DC probe to point (B). Common to point (C).	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
9.	High side to an ungrounded tube shield over FM Conv. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A16, A17, A18, A19, A20	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C4.
10.	"	"	"	Vert. amp. to point (B). Low side to chassis	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	Across FM antenna terminals with 120Ω in each lead.	91MC (Unmod.)	(FM) 91MC	DC probe to point (A). Common to chassis.	A22	Adjust for maximum deflection.
12.	"	105MC	105MC	"	A23	"
13.	"	100MC	100MC	"	A24	Adjust for maximum deflection. Repeat Steps 11, 12 and 13.

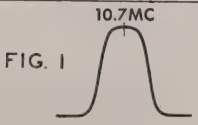


FIG. 1

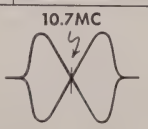
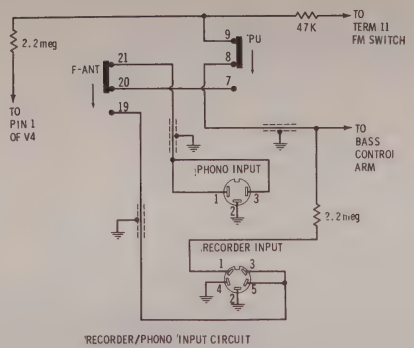
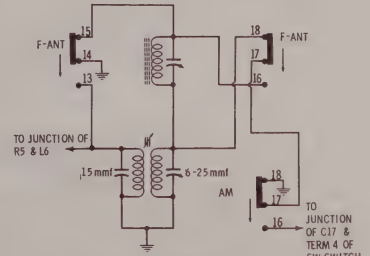


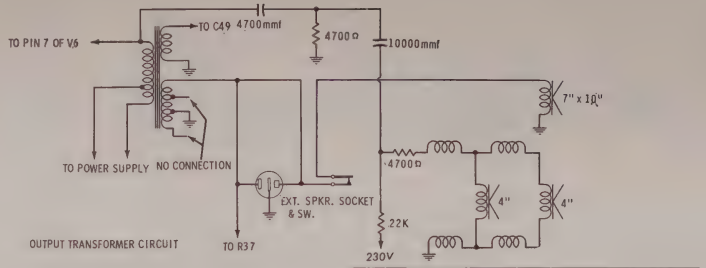
FIG. 2

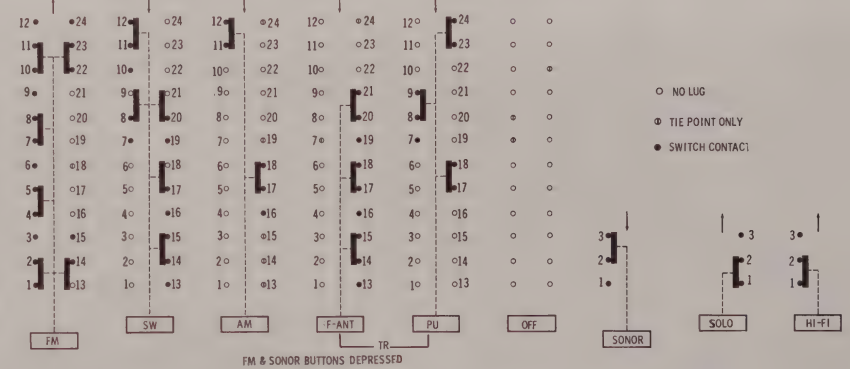


RECORDER/PHONO INPUT CIRCUIT



AM RF SWITCHING CIRCUIT





FM & SONOR BUTTONS DEPRESSED

AM RF SWITCHING, RECORDER/PHONO INPUT, AUDIO OUTPUT AND PUSHBUTTON CIRCUITRY USED IN MODEL 20203.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85
V2	1st FM IF Amplifier-AM Mixer-AM Osc.	ECH81
V3	2nd FM-1st IF Amp.	EF89
V4	Tuning Indicator	EM84
V5	Ratio Detector-AM Det. -AVC-AF Amp.	EABC80
V6	Output	EL84

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BLAUPUNKT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	350		AFH1-41	A0390	FP137	TMS-1630	TVL-1622	
B	▲50	350		PRS1680	BR5035	TC79	TD-50-350	TVA-1713	
C2	1	350		PRS1700	BR145	TC595	TD-2-350	TVA-1700	
C3	4	350		PRS1600	BR435	TC697	TD-4-350	TVA-1601	
C4	2	30		PTT88	NLW2-50	TC302	MLV2-50	TE-1301	
C5	50	12		PTT59	NLW50-15	TT15X50	MLV50-12	TE-1133	
C6	4	12NP	Note 1	PRS7405	BBR4-150	TCN504		TVANS-1150*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in Model Sultan (20203).

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10 N150 5%					*		10TCP-Q10
C8	10 N150 5%					*		10TCP-Q10
C9	4.7 N750 5%		N750-SI 4.7	DTN-4R7	C10V5C	CCTO-050	CN7-547	10TCU-V5
C10	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C11	.0027		SI 2700	D6-272	BYA10D27	CCD-272	B-227	10TS-D27
C12	51 N150 5%					*		
C13	3-15							
C14	15 N150 5%					*		10TCP-Q15
C15	6-25							
C16	10-40							
C17	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C18	1 N750							
C19	3-12							
C20	.0051		SI 5100	D6-502	L10D51	CCD-502	B-250	5HK-D50
C21	450		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C22	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C23	6-25							
C24	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C25	1 NPO		NPO-DI 1.0	TCZ-1			CNO-510	10TCC-V10
C26	.0047		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C27	.0027		SI 2700	D6-272	BYA10D27	CCD-272	B-227	10TS-D27
C28	.047 125V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C29	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C30	.0047		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C31	1 N075					*		
C32	1 N075					*		
C33	.0047		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C34	.0027		SI 2700	D6-272	BYA10D27	CCD-272	B-227	10TS-D27
C35	47 N750		N750-SI 47	TCN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C36	.0047		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C37	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C38	47 N750		N750-SI 47	TCN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C39	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C40	220		SI 220	D6-221	L10T22	CCD-221	B-322	10TS-T22
C41	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C42	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C43	.022 250V	Note 1						
C44	.0047		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C45	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C46	.0047 350V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C47	470 10%			D6-471	5R5T47	CCD-471	GP347	10TS-T47
C48	10 N150					*		10TCP-Q10
C49	.022 350V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C50	.1 125V 10%		C84V2P1-10%			PM4P1	GEM-201	2TM-P10
C51	.047 350V 10%		C84V4S47-10%			PM4S47	GEM-1615	4TM-S47
C52	.27 125V 10%					PM2P25	GEM-2025	2TM-P25
C53	.047 125V 10%		C84V4S47-10%			PM2S47	GEM-1615	2TM-S47

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Shielded Unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BLAUPUNKT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.3meg 300K Tap	½		ABT-73				Volume
B	Shaft			AK-29				
R2	16meg	½						Bass
R3	1meg	½						Treble

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	1000Ω			
R5	10K			
R6	39Ω			
R7	1meg			
R8	1000Ω			
R9	27K			
R10	33K 2W			
R11	470Ω			
R12	27K			
R13	100K			
R14	1.8meg			
R15	1000Ω			
R16	47K 1W			
R17	2200Ω 1W			
R18	150K			
R19	330K			
R20	1meg			
R21	15K			
R22	33K			
R23	10meg			
R24	4700Ω			
R25	220K			
R26	100K			
R27	2.2meg			
R28	47K			
R29	51K			
R30	470Ω			
R31	2.2meg			
R32	470K			
R33	1meg			
R34	1000Ω			
R35	1000Ω			
R36	100Ω			
R37	2700Ω			
R38	2700Ω			
R39	47K			
R40	15K			
R41	270Ω			
R42	100Ω			
R43	180Ω			
R44	1000Ω 3W	PW3-1000	3W-SQ-1000	
R45	1.8meg			
R46	39K			
R47	220K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		BLAUPUNKT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Matching						
L2	SW Ant.						
L3	RF Choke						
L4	460KC IF						
L5	BC Ant.						
L6	Loopstick		BC-419	705-A		T532	
L7A	SW Osc.						
B	RF Choke						
L8	BC Osc.						
L9	2nd FM IF						
L10	1st AM IF						
L11	Ratio Det.						
L12	2nd AM IF						
L13	Tone Choke						
L14	Tone Choke						
L15	Tone Choke						
L16	Fil. Choke						
L17	Fil. Choke						
L18	Fil. Choke						
L19	Line Choke						
L20	Line Choke						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .5A	220V @ .140A AC	6.3V @ 2.6A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4700Ω Tap @ 2.5%	3-4Ω						
		SEC. 2						
		470Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BLAUPUNKT PART No.	QUAM PART No.	
SP1	7"x 10"	PM	3-4Ω	LA785/9Z		
SP2	4"	PM	3-4Ω	LA768/3Z		
SP3	4"	PM	3-4Ω	LA768/3Z		

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	BLAUPUNKT PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.075A	B250C100	1N1763 *		* 4 Required. Add 7.5Ω surge limiter in each HV Transformer leads.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BLAUPUNKT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	8/10A 250V S/B			313.800 (3AG 8/10A 250V S/B)	357001	MDL 8/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	BLAUPUNKT PART No.	NOTES
M3	FM Tuner		Complete
M4	Tuning Cap.		AM, 2 Gang
M5	Switch		Function Selector (Pushbutton Type) Includes Hi Fi, Solo, Sonor, Off-PU-TR-AM-SW- & FM

WIRING DATA

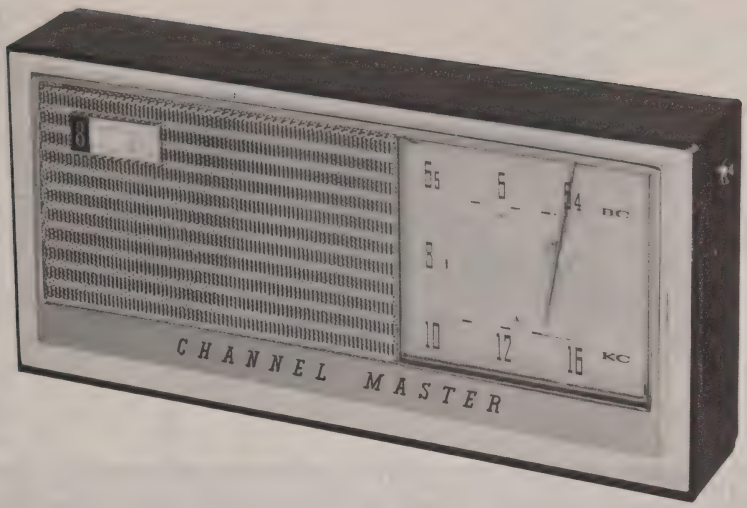
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

**CHANNEL MASTER
MODEL 6515**

CHANNEL MASTER
MODEL 6515



CHANNEL MASTER
MODEL 6515

TRADE NAME	Channel Master Model 6515
IMPORTER	Channel Master Corp., Ellenville, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY 6 Volts DC	RATING 12MA @ 6 Volts DC (No Signal, Min. Volume) 20MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE — BROADCAST 540 — 1600KC	

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A6..... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A8, A9..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	455KC (400% Mod.)	Tuning gang fully closed.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	530KC	"	"	A4	"
3.	"	1650KC	Tuning gang fully open.	"	A5	Adjust for maximum output. Repeat Steps 2 & 3.
4.	"	600KC	600KC	"	A6, A7	Adjust for maximum output.
5.	"	1400KC	1400KC	"	A8, A9	Adjust for maximum output. Repeat Steps 4 & 5.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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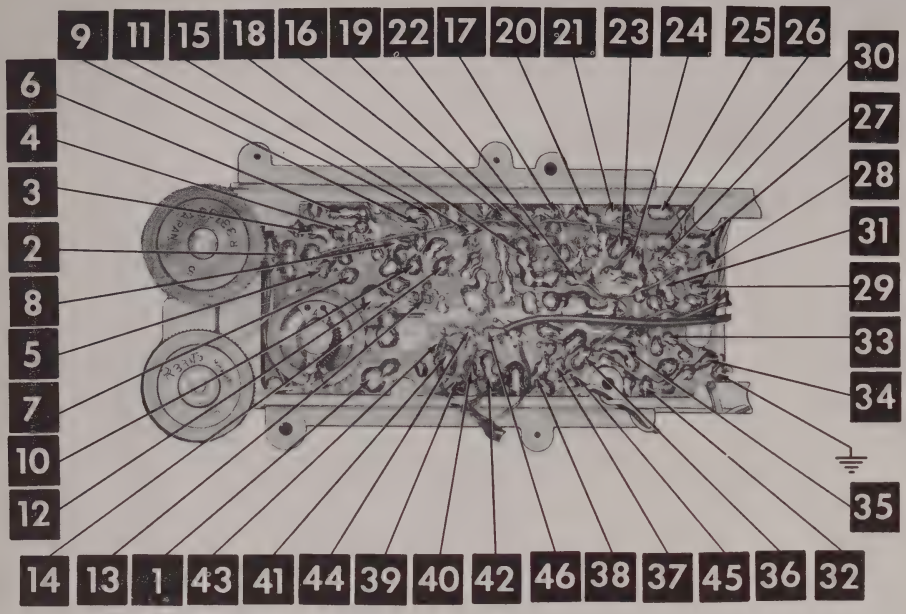
KG731

SET 552 FOLDER 5



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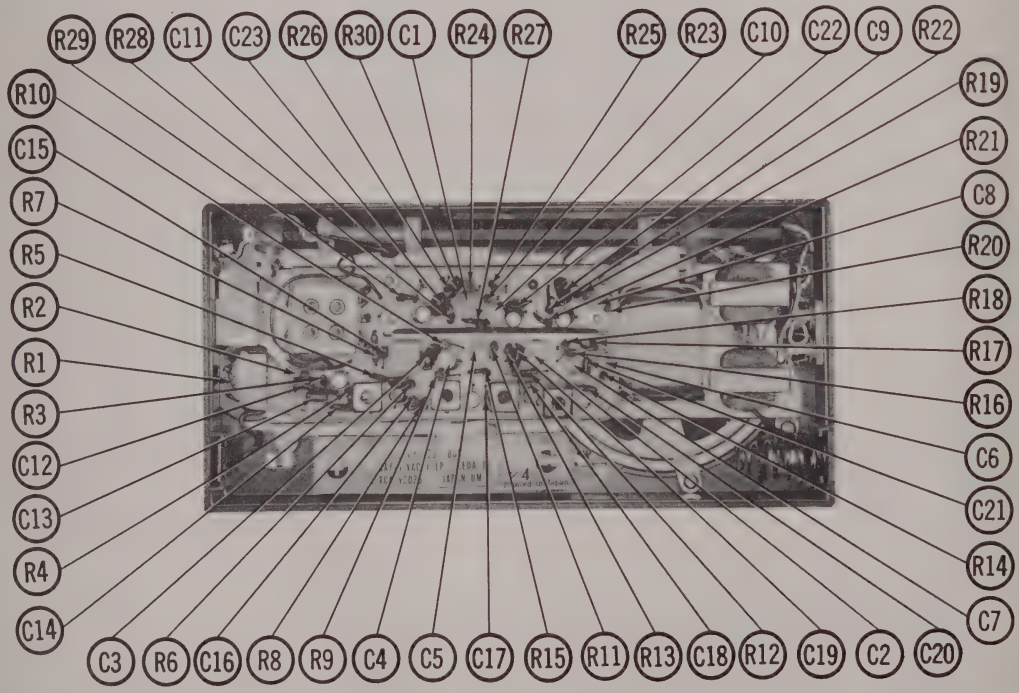
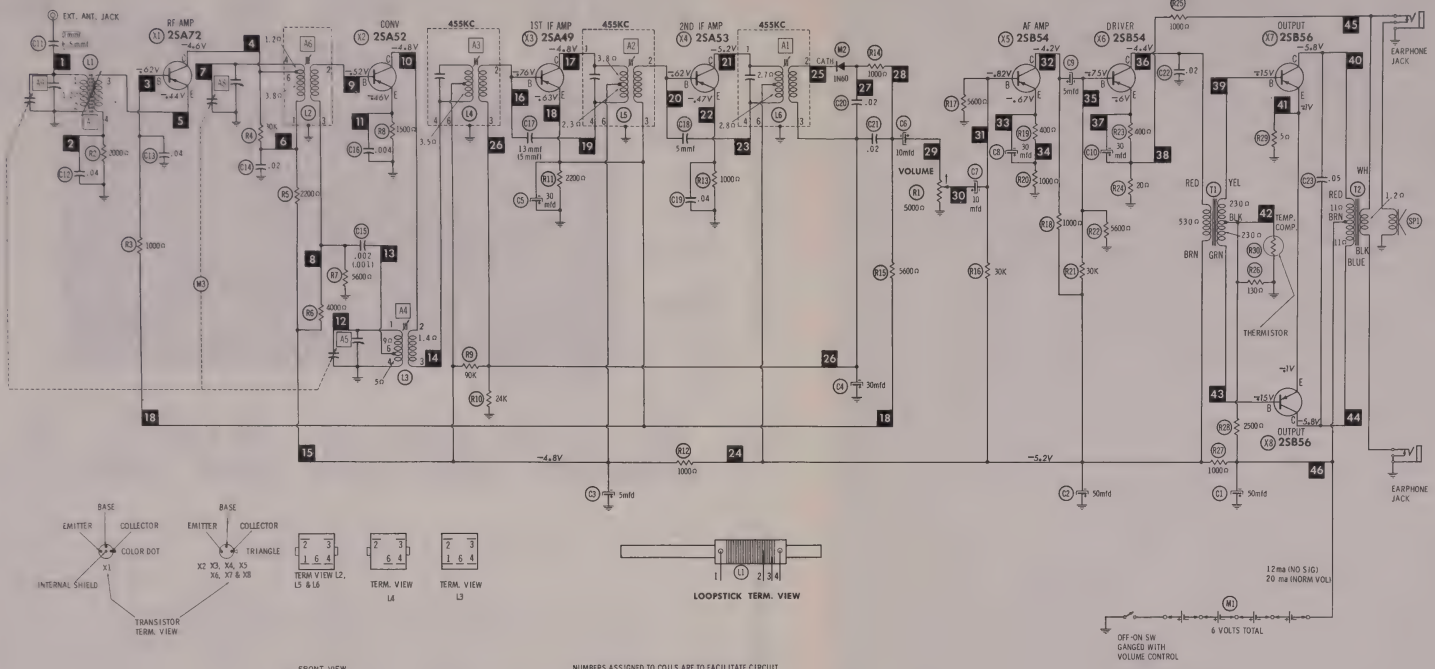
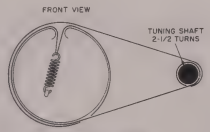


CHASSIS TOP VIEW-CAPACITOR & RESISTOR IDENT.





DRIVE CORD STRINGING

NUMBERS ASSIGNED TO COILS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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CHANNEL MASTER MODEL 6515

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: RAYTHEON PART No.	NOTES
X1	2SA72	RF Amplifier			PNP
X2	2SA52	Converter			PNP
X3	2SA49	1st IF Amplifier			PNP
X4	2SA53	2nd IF Amplifier			PNP
X5	2SB54	AF Amplifier	2N406		PNP
X6	2SB54	Driver	2N406		PNP
X7	2SB56	Output	2N408		PNP ┐ Matched
X8	2SB56	Output	2N408		PNP ┘ Pair

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: Channel Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	50	9	A031	BCD10050	NLW50-10	TT10X50	MLV50-10	TE-1119	
C2	50	9	A031	BCD10050	NLW50-10	TT10X50	MLV50-10	TE-1119	
C3	5	6	A010	PTT21	NLW5-15	TT6X5	MLV5-6	TE-1084	
C4	30	3	A046	BCD3035	ECPB412	PET130	MLV30-6	VL-1043	
C5	30	3	A046	BCD3035	ECPB412	PET130	MLV30-6	VL-1043	
C6	10	3	A038	BCD3010	ECPB408	PET1340	MLV10-3	VL-1038	
C7	10	3	A038	BCD3010	ECPB408	PET1340	MLV10-3	VL-1038	
C8	30	3	A046	BCD3035	ECPB412	PET130	MLV30-6	VL-1043	
C9	5	6	A010	PTT21	NLW5-15	TT6X5	MLV5-6	TE-1084	
C10	30	3	A046	BCD3035	ECPB412	PET130	MLV30-6	VL-1043	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	2 + .5mmf		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C12	.04	#A056						
C13	.04	#A056						
C14	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C15	.002	(.001) †	SI 2000	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C16	.004		SI 4000	D6-402	BYA10D4	CCD-402	B-240	5HK-D40
C17	13	(5) †		TCZ-12	C10Q13C	CCTO-120	CNO-412	10TCC-Q12
C18	5 + .5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C19	.04	#A056						
C20	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C22	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C23	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50

\# Channel Master Part Number.
† Alternate Value.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Channel Master PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	5000Ω	1/4	E015					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN TV PART No.	REMARKS
R2	2000Ω			
R3	1000Ω			
R4	30K			
R5	2200Ω			
R6	4000Ω			
R7	5600Ω			
R8	1500Ω			
R9	90K			
R10	24K			
R11	2200Ω			
R12	1000Ω			
R13	1000Ω			
R14	1000Ω			
R15	5600Ω			
R16	30K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN TV PART No.	REMARKS
R17	5600Ω			
R18	1000Ω			
R19	400Ω			
R20	1000Ω			
R21	30K			
R22	5600Ω			
R23	400Ω			
R24	20Ω			
R25	1000Ω			
R26	130Ω			
R27	1000Ω			
R28	2500Ω			
R29	5Ω			
R30	Temp. Comp.			Pt. #F150

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Channel Master PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	E025	BC-419	705-A		T532	
L2	RF	C045					
L3	Osc.	F193					
L4	1st IF	C042					
L5	2nd IF	C043					
L6	3rd IF	C044					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Channel Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1, 3	1	C040					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Channel Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	350Ω C T	6-8Ω	C041					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Channel Master PART No.	QUAM PART No.	
SP1	3½"	PM	6-8Ω	G097		

BATTERIES

ITEM No.	VOLTAGE	Channel Master PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			130 *		635 *		M-14R*	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Channel Master PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1N60	F136		1N60	Detector (Pigtail)

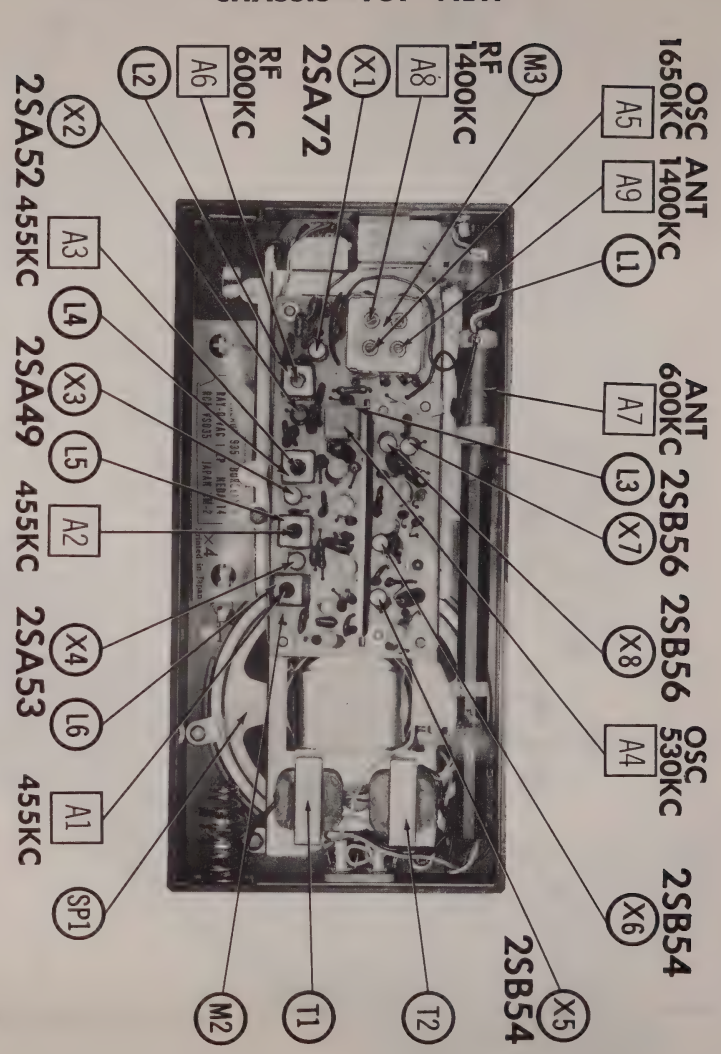
MISCELLANEOUS

ITEM No.	PART NAME	Channel Master PART No.	NOTES
M3	Tuning Cap.	A059	3 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

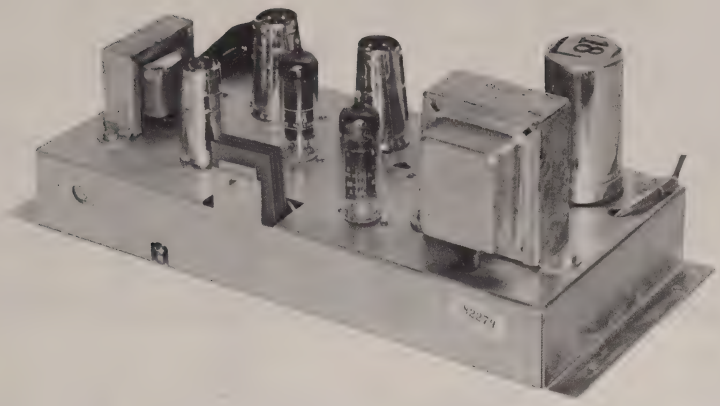
CHASSIS—TOP VIEW



PHOTOFACT® Folder

CURTIS MATHES CHASSIS 20

CURTIS MATHES
CHASSIS 20



CURTIS MATHES
CHASSIS 20

TRADE NAME	Curtis Mathes Chassis 20
MANUFACTURER	Curtis Mathes Mfg. Co., 2220 Young Street, Dallas, Texas
TYPE SET	AC Operated 5 Tube Reverberation Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 29 Watts, .3 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KZ781

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC)	TYPE (RAYTHEON)	TYPE (SYLVANIA)
V1	AF Amplifier	12AX7		
V2	AF Amplifier	12AX7		
V3	Reverb Driver	6AQ5A		
V4	Reverb Amplifier	6AV6		
V5	Rectifier	6X4		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA: Curtis Mathes PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▬40	350	4A34	AFH4-04	D0032	FP420.35	TMQ-4295	TVL-4635	
B	10	350							
C	▲10	350							
D	■30	350							
C2	10	150	4A30-5	PRS1410	BBR10-150	TC42	TD-10-150	TVA-1406	
C3	500	25	4A30-4	PRS1290	BR5002	TC2505	TD-500-25	TVA-1209	
C4	5	25	4A3	PRS1310	BBR5-50	TC30	TD-5-25	TVA-1203	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.0027		DI 2700	DD-272	BYA10D27	CCD-272	B-227	10TS-D27
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.0027		DI-2700	DD-272	BYA10D27	CCD-272	B-272	10TS-D27
C14	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Curtis Mathes PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	50K	½	2A24	TT-31	B47-50K-S	B11-123	PTA54L	Reverb. Level
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

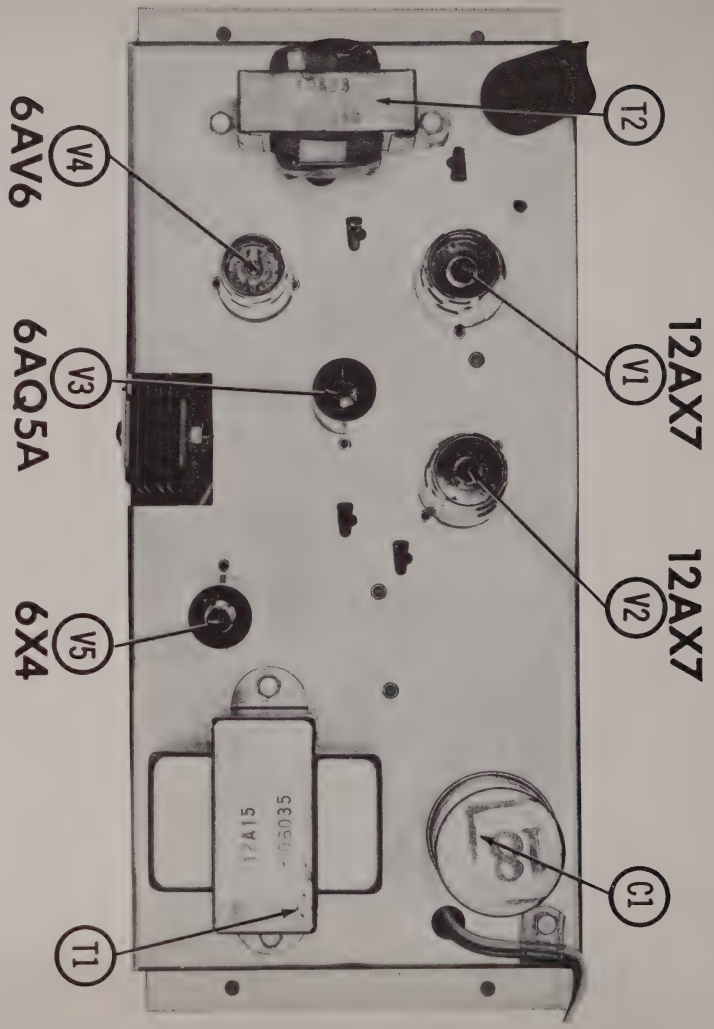
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	2.2meg			
R3	47K			
R4	3300Ω			
R5	22K			
R6	100K			
R7	1000Ω			
R8	39K			
R9	2200Ω			
R10	2.2meg			
R11	47K			
R12	3300Ω			
R13	22K			
R14	39K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R15	1000Ω			
R16	2200Ω			
R17	1meg			
R18	1meg			
R19	470K			
R20	680Ω			
R21	10meg			
R22	22K			
R23	1000Ω 2W			
R24	10K			
R25	68K			
R26	68K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: Curtis Mathes PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .3A	500VCT @ .030A DC	6.3V @ 1A	12A15					
	SEC. 3	SEC. 4	SEC. 5						
	17V @ .4A AC								

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA: Curtis Mathes PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC.						
T2	1.5	1	10A23					

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: Curtis Mathes PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.320A	ST304B	1N1763 *		* 4 Required

MISCELLANEOUS

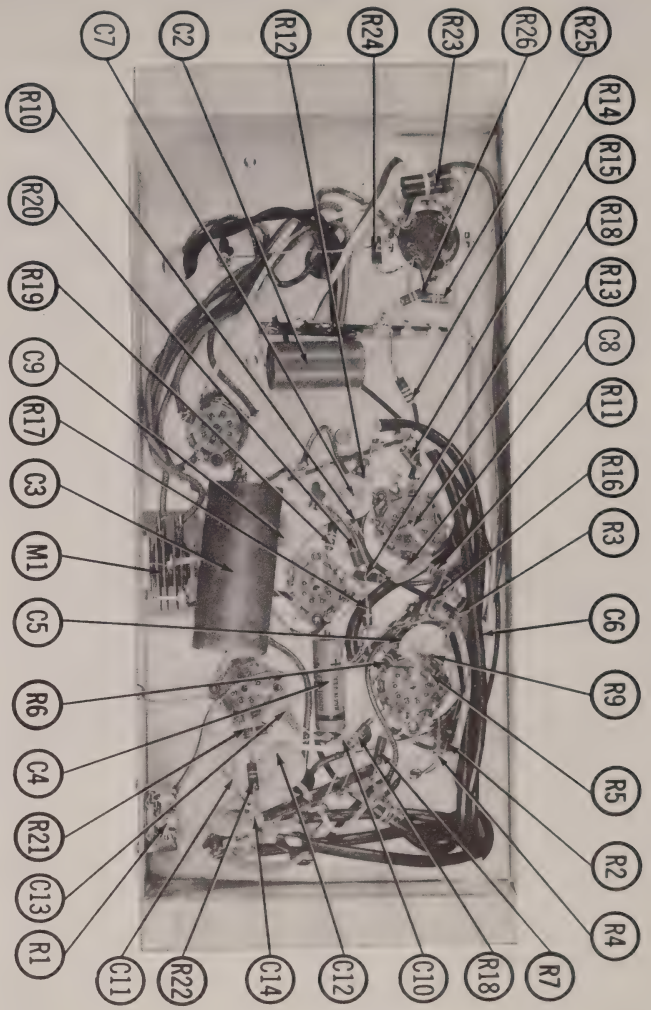
ITEM No.	PART NAME	Curtis Mathes PART No.	NOTES
M2	Reverberation Unit	4C	

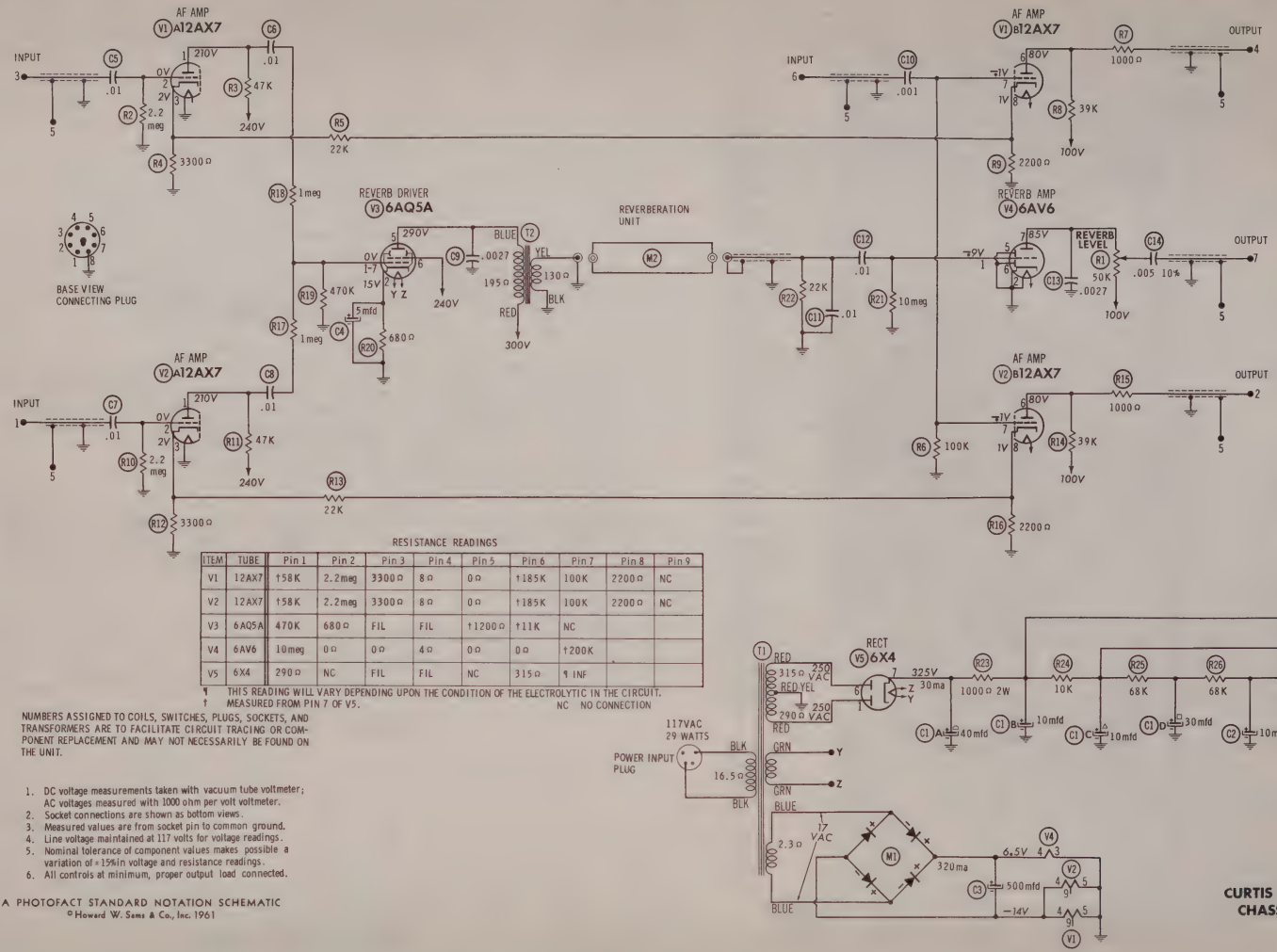
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†58K	2.2meg	3300Ω	8Ω	0Ω	†185K	100K	2200Ω	NC
V2	12AX7	†58K	2.2meg	3300Ω	8Ω	0Ω	†185K	100K	2200Ω	NC
V3	6AQ5A	470K	680Ω	FIL	FIL	†1200Ω	†11K	NC		
V4	6AV6	10meg	0Ω	0Ω	4Ω	0Ω	0Ω	†200K		
V5	6X4	290Ω	NC	FIL	FIL	NC	315Ω	¶ INF		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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CURTIS MATHES CHASSIS 20

PHOTOFACT® Folder

DELMONICO
MODEL SRC-4

DELMONICO
MODEL SRC-4

GENERAL INFORMATION

Delmonico Model SRC-4 record changer plays a stack of records in automatic sequence and shuts off after the last record.

As many as ten 12-inch, twelve 10-inch, or ten 12-inch and 10-inch records may be intermixed (provided they are of the same speed) and may be loaded on the spindle.

This changer has four speeds: 16 2/3, 33 1/3, 45, and 78 rpm.

Records are separated by movement of a finger in the center spindle, which directly separates records having a 1/4-inch center hole.

The tripping method is of the velocity type, requiring rapid tone arm acceleration to actuate the trip mechanism.

Connect this changer to an outlet supplying 117 volts, 60 cycles AC only unless otherwise specified.

IMPORTED BY:

Delmonico International
Division of Thompson-Starrett Co., Inc.
120-20 Roosevelt Ave.,
Corona 68, New York

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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CQ493

OPERATING INSTRUCTIONS

Loading

1. Lift record support arm (2) straight up until it clears the spindle. Then move the record support arm out over the pickup arm.

2. Place records on the spindle and lower to offset shelf. Hold records level and replace record support arm over spindle.

Starting

Make sure the stylus and speed controls are in the position corresponding to the type of records to be played. Then turn the Off-On-Rej. knob to Rej. and release. The changer will play and change each record, and shut off automatically after the last record has been played.

Rejecting

To reject a record at any time while changer is operating, move the Off-On-Rej. knob to Rej. and release.

Unloading

Pull straight up on record support arm until it clears the spindle and swing out over pickup arm. Using both hands, and with fingers under the edge of the bottom record, lift records straight up and off the spindle.

Stopping

The changer may be stopped any time a record is playing by turning Off-On-Rej. to Off. Lift pickup arm and place on rest post.

Manual Operation

Records that do not have starting and fast-finishing grooves must be played manually. Lift the record support arm and swing it to the right until it clears the turntable. Place record on the spindle and lower to the turntable. Turn the Off-On-Rej. knob to On position only. Gently place the needle on record.

CHANGE CYCLE

Manually rotate the turntable and observe the change cycle operation. The following description can then be readily followed, and the function of each part more easily understood.

This changer has a velocity trip mechanism. The change cycle is started by the faster inward motion of the pickup arm when the needle enters the trip grooves at the end of a record. Only records having fast-finishing grooves will operate this trip.

The pickup arm and trip finger cam and shaft assembly (78) are connected so that they move in unison. As the pickup arm nears the end of a record, trip finger cam (78) pushes trip link (84), engaging and pivoting trip lever (110). As trip lever (110) pivots, pawl lever (107) pivots with it and carries the trip pawl toward the turntable hub. While a record is playing, the small motions of the trip pawl are not sufficient to cycle the mechanism because on each revolution of the turntable, the wiping contact by the hub projection moves the trip pawl back.

When the needle enters the record lead-out groove, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The contact between the trip pawl and turntable hub projection gives the necessary push for the teeth in main gear (109) to engage the teeth in the turntable hub, causing main gear (109) to rotate. This action starts the lateral travel of slide assembly (87). Slide assembly (87) is moved toward the rear by an eccentric mounted pin on main gear (109). This pin rides in the cross-slot in slide assembly (87).

As the slide assembly begins to move, lift pin (14) rides up the incline on the rear of slide assembly (87), raising the tone arm. At the same time, trip finger cam (78) is pushed upward by lift pin spring (85), causing the two formed dimples in the trip finger cam to engage the two holes in pickup arm indexing lever (74). This action controls the movement of the tone arm during the change cycle.

Slide assembly (87) continues to move away from the spindle until the formed end of slide assembly (87) pushes against pickup arm indexing lever (74). This action moves the pickup arm out over pickup arm rest (24).

A tab on the front of slide assembly (87) now contacts ejector bracket assembly (112). Ejector bracket (112) moves push rod (104) upward to actuate spindle assembly (41), dropping a record to the turntable.

Simultaneously, the trip pawl on top of main gear (109) contacts and rides along the curved finger of retard assembly (77). After leaving the finger of retard assembly (77), the trip lever assembly comes into contact with the trip link guide rivet. This action moves the pawl into the trip position again; however, before the change cycle is completed the trip pawl is reset by the tab located near the cross-slot in slide (87).

At this time, the cam surface of the bracket on top of main gear (109) moves reset lever (61) to its midposition (10" setdown), where reset lever (61) is held by 12" record selector (51). Slide assembly (87) continues to the rear and then starts forward.

If 7" records are being changed, rubber bumper (62) and 7" setdown lever (66) are free to move upward. This action raises reset lever (61) to the upper position (7" setdown).

If 10" records are being changed, 7" setdown lever (66) will not rise, because rubber bumper (62) will contact the edge of the 10" record. Consequently, reset lever (61) remains in the midposition (10" setdown) as originally placed by the camming action of the bracket on top of main gear (109).

When a 12" record drops to the turntable, the record strikes 12" record selector (51) and pivots the selector toward the rear of the changer. This action

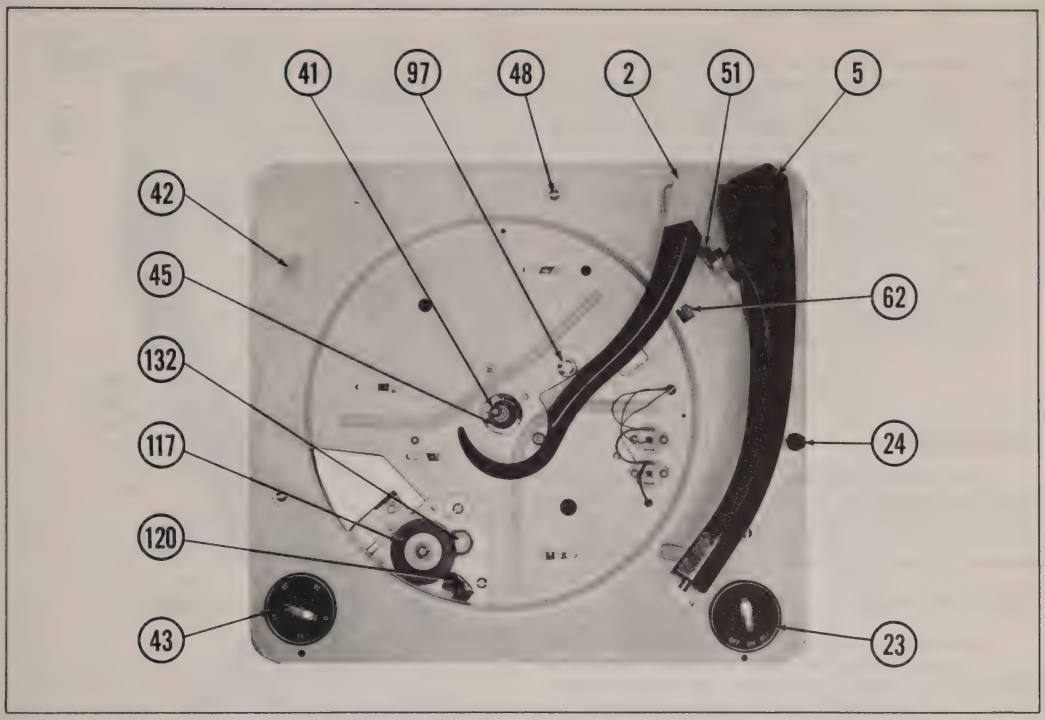

FIG.1 TOP VIEW OF MECHANISM WITH TURNTABLE REMOVED

disengages the end of reset lever (61) from the edge of 12" record selector (51) and permits reset lever (61) to drop into the recess at the bottom of 12" record selector (51). Reset lever (61) then engages the bottom step of pickup arm return locator (74), positioning the pickup arm for 12" setdown.

As slide assembly (87) continues forward, the tab on the rear of the slide moves clear of pickup arm indexing lever (74) and trip finger cam (78), which are still locked together. This action permits pickup arm return spring (71) to move the pickup arm inward until one of the three setdown steps in pickup arm indexing lever (74) strikes reset lever (61), stopping the inward travel of the pickup arm directly above the point of landing. The pickup arm is then lowered to the lead-in groove of the record as lifting rod (14) rides down the incline on the rear of slide assembly (87). As pressure is released from the lift pin spring (85), trip finger cam (78) and pickup arm indexing lever (74) separate, permitting the pickup arm to track freely across the record.

After the record has been played and the mechanism trips, the preceding sequence of cycling and playing of records is again followed until the last record of the stack remains on the spindle shelf.

As the last record of the stack drops to the turntable, record support arm (2) drops below the shelf on spindle assembly (41), and the lower end of record support shaft (93) contacts the stop arm on record support guide assembly (91). The stop arm in turn applies force to shutoff lever (75). At this moment, cycling slide (87) is in its outermost position (away from spindle), and the end of shutoff lever (75) is forced against escape lever (87A), preventing shutoff lever (75) from lowering further.

As cycling slide (87) returns to the out-of-cycle position, the end of shutoff lever (75) slides off escape lever (87A), permitting the end to extend down through the slot in the cycling slide. By this time, indexing lever (74) has rotated too far to be blocked by shutoff lever (75), and the pickup arm is permitted to land on the record.

After the last record has played, the mechanism again goes into cycle. When cycling slide (87) has reached its outermost position, the force applied to shutoff lever (75) from record support shaft (93) causes the end of shutoff lever (75) to extend through the slot in cycling slide (87). The other end of shutoff lever (75) rises and prevents indexing lever (74) from rotating. This action positions the pickup arm directly over pickup arm rest post (24).

As cycling slide (87) moves back toward the spindle, trip link (84) pushes switch lever (65), actuating power switch (68). Thus power is removed from the motor, stopping the mechanism.

As slide assembly (87) returns to the out-of-cycle position, lifting rod (14) rides down the slide incline and lowers the pickup arm onto rest post (24).

LUBRICATION

Additional lubrication shouldnot be required for the life of the changer. However, if the changer has extreme usage, or if parts are replaced, lubricate with a good grade of non-hardening grease, as follows:

1. Edges of all slots in slide assembly (87).
2. Outer edges of forked end of slide assembly(87).
3. Lift pin cam surface on slide assembly (87).
4. Lower surface of indexing lever (74).
5. Inner tab surface on slide assembly rear (87).

Apply one drop of light mineral oil to:

1. Trip finger cam shaft (78).
2. Push rod (104).
3. Top and bottom motor bearings.

ADJUSTMENTS

Needle-Setdown

The setdown position of the needle is adjusted by setdown adjustment screw (21A). Turn this screw until setdown is correct for a 10-inch record. When 10-inch setdown is correct, the 12-inch and 7-inch setdown will also be correct.

Pickup Arm Height

The pickup arm height is adjusted by lift screw (10). To raise pickup arm, turn this screw counter-clockwise. To lower pickup arm, turn screw clock-wide. The pickup arm height should be adjusted so that, with a 1 1/8" stack of records on the turntable, the pickup arm lifts 1/4" above the top record as the change cycle starts.

Needle Pressure

Needle pressure should be between 6 and 8 grams. To adjust, loosen screw (11) and move adjusting slide (7) until proper pressure is obtained.

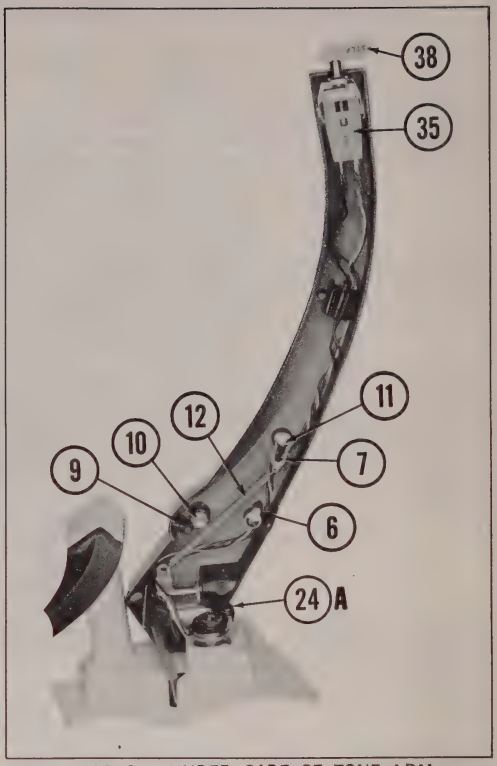

FIG.2 UNDER SIDE OF TONE ARM

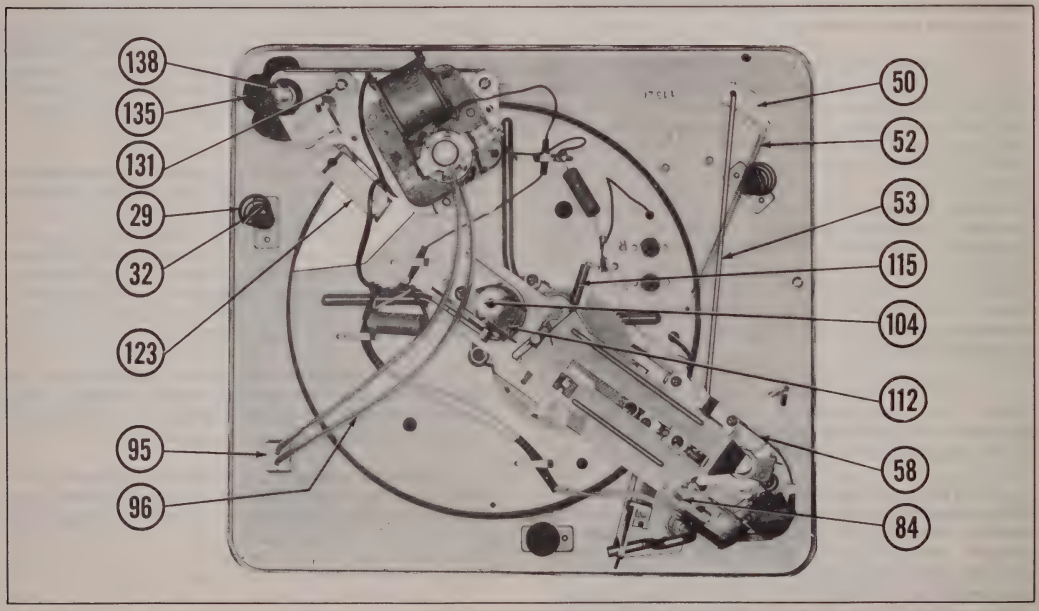

FIG.3 BOTTOM VIEW OF MECHANISM

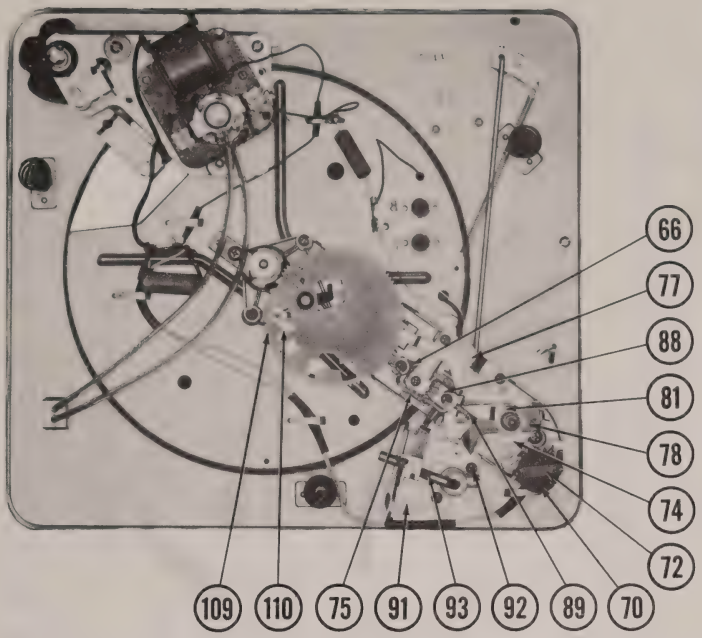

FIG.4 BOTTOM VIEW OF MECHANISM WITH FRAME ASSEMBLY REMOVED

TROUBLE CHART

Symptom	Cause	Remedy
Turntable does not revolve when control is turned to "On" position.	1. No current at motor.	1. (a) Check that current is reaching AC leads of changer. (b) Check that switch (68) is closing. (c) Check wiring and soldered terminals on the changer.
	2. Motor idler wheel not engaging turntable.	2. If drive spindle is turning but turntable is not: (a) Check idler assembly to determine if it is free to contact the drive spindle and turntable rim. (b) Clean the turntable rim (16), rubber tire of idler wheel (117), and motor spindle (132) with alcohol.
Changer will not cycle when the control knob is turned to "Rej". position.	1. Manual reject not actuating the trip.	1. (a) Check for binding of pawl lever (107), trip lever assembly (110) and the trip pawl. If binding occurs, clean out all foreign matter and check for freedom.
Pickup arm strikes records on spindle when it raises, or pickup arm rest (24) when it moves out.	1. Pickup arm height not adjusted properly.	1. Refer to instructions for adjusting pickup arm height under "Adjustments".
Turntable speed too slow.	1. Binding in turntable bearing.	1. Check the turntable bearing for freedom. Switch speed selector to "O" and spin the turntable by hand, to see if it turns readily and coasts for a long time. If binding occurs, remove turntable, clean off foreign matter, and lubricate with light oil.

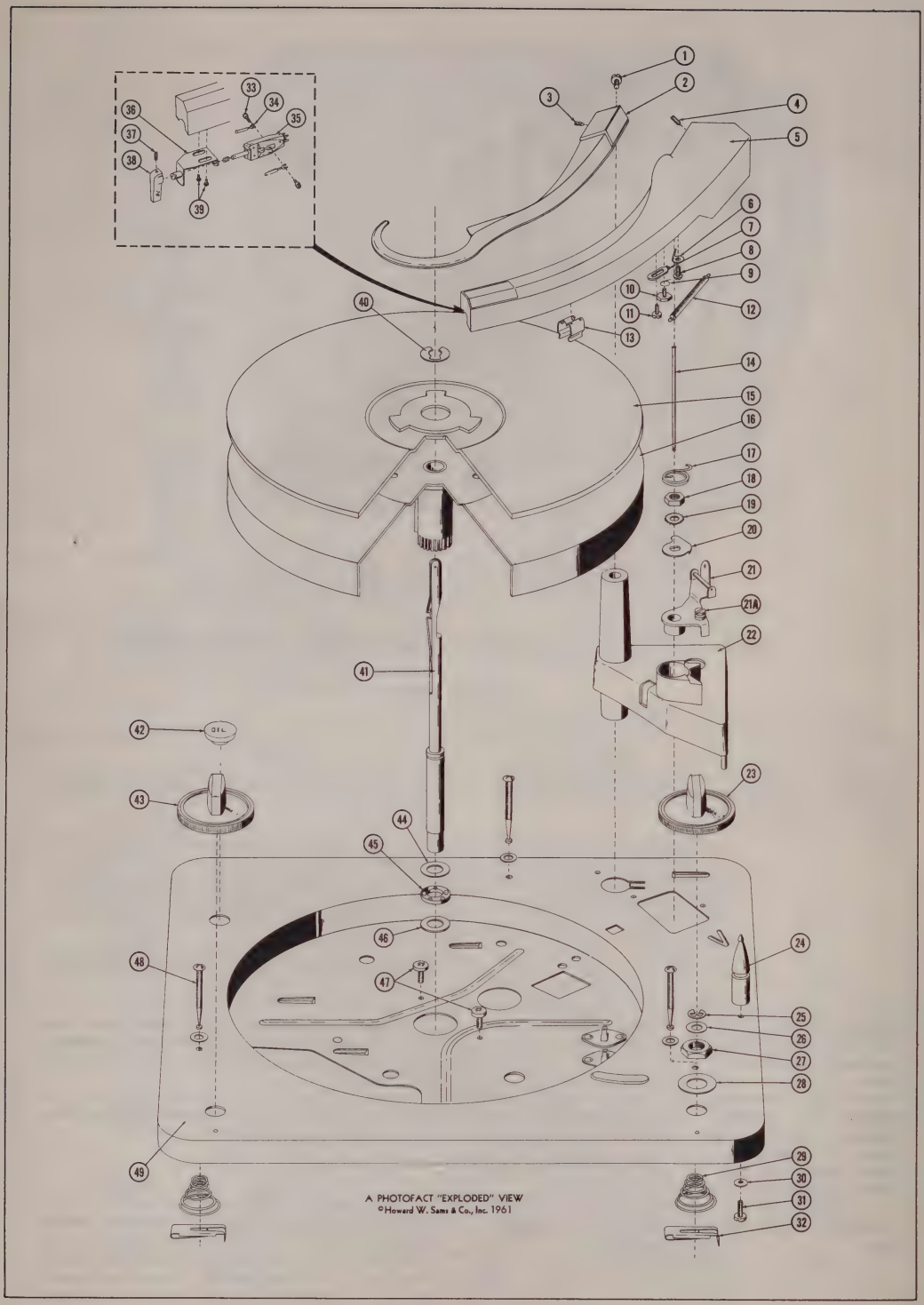

FIG.5A EXPLODED VIEW OF PARTS ABOVE BASE PLATE

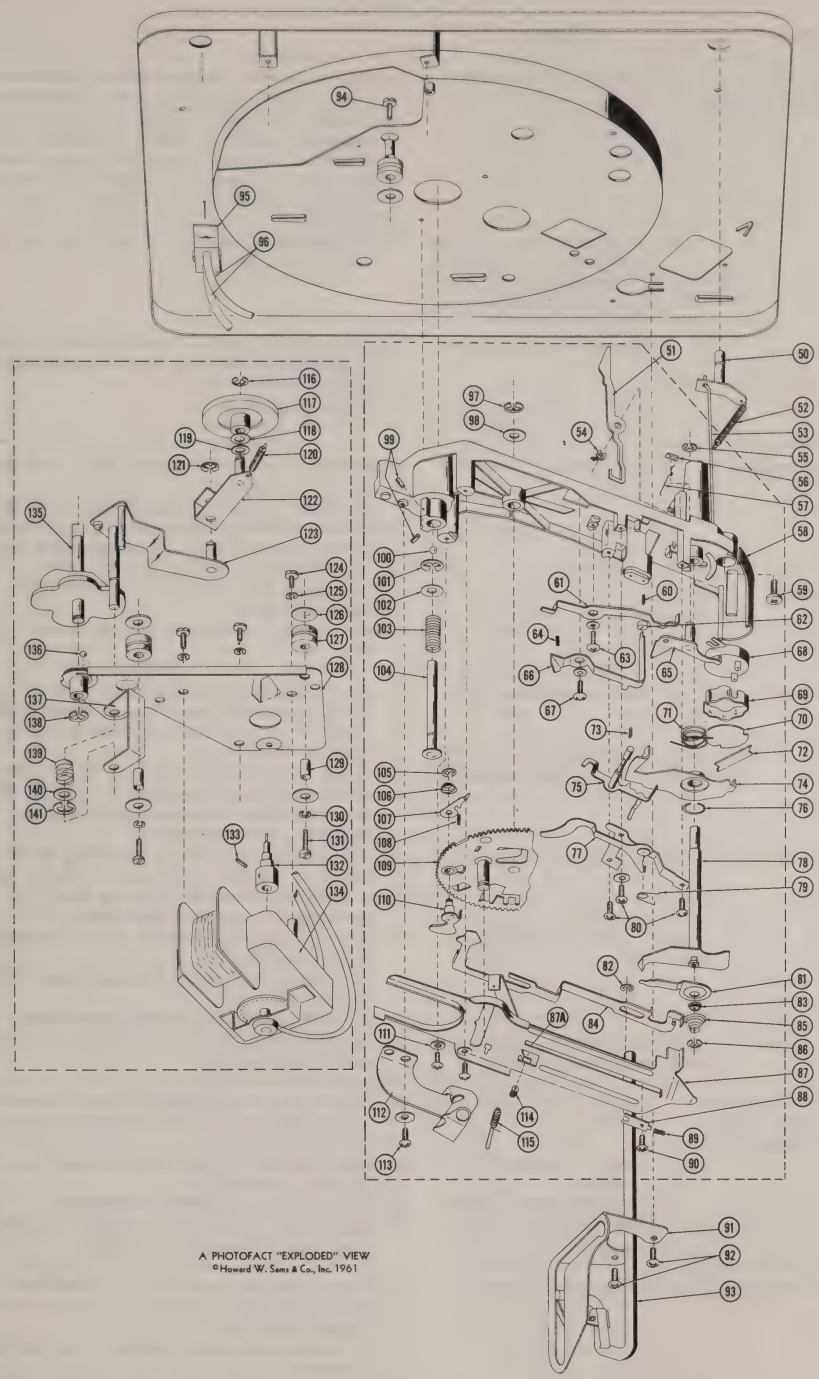

FIG.5B EXPLODED VIEW OF PARTS BELOW BASE PLATE

Symptom	Cause	Remedy
Turntable stalls or slows down during cycle.	1. Binding in drive mechanism.	1. Hold idler away from turntable, or remove idler wheel. Cycle changer by turning turntable slowly by hand. The main gear should turn freely for the complete revolution without binding at any point. If binding occurs, check for foreign matter in gear teeth, a bent gear bearing, or bent spindle bushing. Straighten or replace. Clean and lubricate.
	2. Binding between pickup arm lifting rod (14) and lifting rod cam surface on slide and cam assembly.	2. Lifting rod should ride freely on cam surface without binding.
	3. Grease on idler wheel.	3. Wipe off idler wheel rubber tire (117), inner rim of turntable (16), and motor spindle (132) with alcohol.
	4. Idler wheel tension spring (120) weak.	4. Replace spring.
Changer continues to cycle.	1. Reject mechanism binding.	1. (a) Make certain trip link (84) is not frozen in reject position. (b) Make certain changer switch lever (65) is not binding and that it actuates trip link (84) when the changer control knob (23) is turned to reject. (c) Check for binding of trip pawl, trip lever (110), and pawl lever (107); these must be free and turn easily. (d) Check the changer control linkage, (53) and (65).
Noise during playing of record.	1. Motor rumble.	1. Check motor grommets to be sure the motor is freely suspended on them. Check motor lead wires for proper slack to allow motor to float.
	2. Unbalanced motor rotor.	2. Replace the motor.
	3. Defective turntable bearing (45).	3. Check for foreign matter in the bearing; also check for rough surface on bearing washers. Clean bearings and washers or replace. Lubricate with light mineral oil.
	4. Defective idler wheel (117).	4. A rapid thumping sound while the motor is running may indicate a flat spot on idler wheel (117). If condition does not clear up after ten minutes running time, replace idler wheel (117).
	5. Turntable scrapes.	5. If scraping sound occurs as the turntable revolves, check: (a) Warped turntable, causing outer rim to rise and fall. (b) Motor idler or mounting plate bent.
	6. Squeaking sound as changer operates.	6. Indicates lack of oil. Lubricate points indicated under "Lubrication".
Changer does not shut off after last record has been played.	1. Record support arm (2) binding.	1. The record support arm (2) must drop below the off-set shoulder of the spindle or the changer will not shut off.
	2. Lever assembly (75) binding.	2. Clean dirt from lever assembly and make sure it operates smoothly.
	3. Shut-off bracket binding.	3. Check bracket; if bent, straighten.
	4. Shut-off lever not engaging locator.	4. Adjust tab on slide that rotates the locator and trip finger when unit is cycling.
Rough tone arm motion.	1. Horizontal defects.	1. Check indexing lever (74) for tightness. Check that pickup return spring (71) is not weak and is in proper place.
	2. Vertical defects.	2. (a) Lifting rod (14) binding; clean out dirt and lubricate. (b) Slide and cam (87) binds; check bearing points — clean and lubricate. (c) Burrs in main slot in slide and cam (87) — remove with fine file.

Symptom	Cause	Remedy
		(d) Ejector lever on ejector bracket assembly (112) binding. Straighten; remove burrs, and lubricate. (e) Pickup arm shaft and sleeve binding; clean and lubricate.
Noise during change cycle.	1. Forked end of the slide and cam assembly (87) bent. 2. Grinding noise.	1. Replace slide and cam assembly (87). 2. Lubricate ejector lever (112) where it contacts lower end of push rod (104).
Shuts off when last record drops.	1. Shut-off bracket (91) bent. 2. Record support arm (2) bent. 3. Loose shut-off lever assembly (75). 4. Escape lever spring(114) missing.	1. Straighten or replace. 2. Bend record support arm (2) until parallel with baseplate. 3. Tighten. 4. Replace spring (114).
Record does not drop when changer cycles.	1. Spindle push rod (104) broken, or bent. 2. Record finger in spindle (41) not moving far enough to eject record. 3. Check that ball bearing (100) is not missing.	1. Replace push rod (104). 2. The record finger should move forward until it has reached a point flush with, or a maximum of, .010 beyond the spindle body (41). To insure that the record finger is all the way forward, push rod (104) should be raised high enough by the ejector lever to slightly compress the pusher spring (103). (Also See "Turntable stalls or slows down during cycle".) If the spring is compressed and the record finger does not move far enough forward to eject a record, the spindle (41) should be replaced. 3. Replace ball bearing (100).
Two records drop at the same time.	1. Hole in record too large. 2. Spindle guide not fully down. 3. Slight play in spindle (41).	1. An oversize hole will cause two records to drop at once. 2. If spindle guide is not all the way down, more than one record may drop at a time. Check the guide to be sure it is free and does not bind at any point. Clean out foreign matter or straighten if necessary. Do not oil. When records are placed on the spindle, be sure the guide is all the way down. The guide will normally raise as a record is being dropped, but it should return to place immediately, by gravity. 3. Tighten set screws (99).
Record hits pickup arm.	1. Record finger not moving far enough forward to eject record. 2. Record finger extending beyond outside diameter of spindle. 3. Pickup arm not adjusted properly.	1. (See "Record does not drop when changer cycles".) 2. Cycle changer, by hand, until pusher shaft is at the top of its travel. Using a new record as a guage, pass it over the spindle to see if it binds at any point. File off high points on record finger with a fine file, until record will pass freely over spindle. 3. See "Adjustments".
Needle does not set down on 10" record in proper position.	1. Pickup arm not adjusted properly. 2. Pickup arm shaft and sleeve (78) binding.	1. (See "Adjustments".) Also, loose nut (18) on pickup arm and sleeve (78). 2. File off burrs and rough surfaces. Polish and lubricate shaft.

Symptom	Cause	Remedy
	3. 7" set-down lever (66) and 12" record selector (51) not operating properly.	3. Check to see if reset of the 7" set-down lever (66) and 12" record selector (51) is not being interfered with.
	4. Wire spring (57) broken.	4. 12" record selector (51) does not cock; check for broken 12" record selector spring (57).
	5. Bent Pickup arm indexing lever (74).	5. Straighten or replace indexing lever (74).
	6. Bent trip finger cam (78).	6. Straighten or replace trip finger cam (78).
Needle does not set down on 12" record in proper position.	1. Pickup arm not adjusted properly.	1. (See "Adjustments".)
	2. Binding of pickup arm shaft and sleeve (78).	2. Clean and polish shaft (78), and lubricate with light oil.
	3. Reset lever spring (60) broken.	3. Replace reset lever spring (60).
	4. 12" record selector spring (57) broken.	4. Replace 12" record selector spring (57).
	5. 12" record selector (51) binding.	5. The 12" record selector must be free to operate smoothly. Clean out dirt and straighten if bent, or replace.
	6. Bent pickup arm indexing lever (74).	6. Straighten or replace pickup arm indexing lever (74).
	7. Bent trip finger cam (78).	7. Straighten or replace trip finger cam (78).
Needle does not set down on 7" record properly.	1. 7" set-down lever spring (64) broken or weak.	1. Replace.
	2. Pickup arm not adjusted properly.	2. (See "Adjustments".)
	3. 7" set-down lever screw (67) loose.	3. Tighten set-down lever screw (67).
	4. 7" set-down lever (66) hitting frame or baseplate where it goes through hole in frame.	4. Straighten or replace.
	5. Reset lever (61) bent.	5. Replace.
	6. 7" set-down lever (66) does not fall into opening in main gear.	6. Replace.
	7. Bent pickup arm indexing lever (74).	7. Straighten or replace
	8. Bent trip finger cam (78).	8. Straighten or replace.
Changer trips before needle reaches end of record.	1. Hole in record too large.	1. If the hole in the record is too large, the groove may turn eccentric with the spindle and cause premature tripping.
	2. Binding of trip link (84).	2. With the trip link (84) released, check the trip link for freedom of motion. It should be free to move without binding.
Changer does not cycle when record has been played.	1. Needle jumps out of grooves in record.	1. (a) Check trip pressure; the lateral pressure should not exceed 3 grams, (if pressure is excessive, see "Changer trips before needle reaches end of record"). (b) The record may be defective; the finishing groove is often too shallow. Check with a record that is known to be good. (c) The needle point may be damaged or affected by an excessive accumulation of dust, lint, etc; check needle pressure as described under "Adjustments". (d) There may be binding in the pickup arm shaft and sleeve assembly (78) or between the pickup arm indexing lever (74) and the trip finger cam (78); (See "Needle does not track properly across record").

Symptom	Cause	Remedy
	2. Trip pawl binding on gear face.	2. The trip pawl must be free to move forward and engage the boss on turntable hub when the trip lever releases it. Check for burrs or foreign matter lodged between the trip pawl and main gear (109). Do not oil as this might collect dirt, and gum up the pawl.
	3. Trip finger cam (78) bent.	3. Straighten or replace.
	4. Trip link (84) bent.	4. Straighten or replace.
Needle does not track across record properly.	1. Needle may be clogged by accumulation of lint, dirt, etc., or worn.	1. Clean foreign material from around needle. Check needle to see if the tip is bent or broken. Replace if necessary.
	2. Trip finger cam (78) does not disengage from the pickup arm indexing lever (74) when cycle is completed.	2. There should be a 1/32" gap between the trip finger cam (78) and the indexing lever (74) when the changer is not in cycle.
	3. Check the bearing in the pickup arm post for binding.	3. Check indexing lever (74) and trip finger cam (78) for binding (See 2 above).
	4. Pickup leads too tight.	4. Give the pickup leads enough slack to allow the pickup arm to move freely across a record.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	SPS4008N	Set Screw
2	G3003	Support
3	YFS4007	Set Screw
4	EG6084	Set Screw
5	EG6083	Pickup Arm
6		Solder Lug
7	TA0110	Adjusting Slide
8	SPB3004N	Screw
9	EG6085	Lock Spring
10	EG6089	Lift Screw
11	SPB3004N	Screw
12	PS1413	Hinge Spring
13	PS1414	Locking Clip
14	G5025	Lifting Rod
15	G2002	Turntable Cover
16	G3001	Turntable
17	G5054	Safety Spring
18	G5053	Hex Nut
19	G4036-1	Lock Washer
20	G5052	Safety Plate
21	EG6091	Hinge Arm Ass'y.
21A		Set-Down Adj. Screw (Part of Item 21)
22	G2001	Record Support & Pickup Arm Housing
23	G3008-1	Knob, On-Off-Rej.
24	G4008	Pickup Rest
25	G4035-4	"E" Ring
26		Fiber Washer
27	G5005	Hex Nut
28	G5008	Washer
29	52170	Mounting Spring
30	WNS4000	Washer
31	SPS4008Z	Screw
32	G4056	Mounting Clip
33		Screw
34		Needle Assembly
35	E0511-A1	Cartridge
36	CS1106	Cartridge Bracket
37	SFB2005N	Set Screw
38	CS1105	Turnover Knob
39	SFB1402	Screw
40	G4039-1	"C" Washer
41	G3024-A	Spindle
42	M4054	Oil Cap
43	G3008-2	Knob, Speed Control
44		Bearing Washer
45	G5070	Thrust Bearing
46		Bearing Washer
47	SPSP5010Z	Screw
48	52092	Mounting Screw
49	G1001-A	Baseplate
50	G4026-A	Control Lever
51	G4004	12" Selector Lever
52	G5009	Reject Lever Spring
53	G4079	Reject Lever Rod
54	G4035-1	"E" Ring
55	45646-1	"E" Ring
56	52574-2	Speed Nut
57	G5029	12" Selector Spring
58	G1002	Frame Ass'y.
59	SPSP5010Z	Screw
60	G5013	Reset Lever Spring
61	G4023	Reset Lever
62	G5014	7" Selector Bumper
63	SBSB3508	Screw
64	G5015	7" Selector Lever Spring
65	G4014	Switch Lever
66	G4005	7" Lever
67	SBSB3508	Screw
68	G3023	AC Switch
69	G5059	Switch Insulator

Ref. No.	Part No.	Description
70	G5057	Switch Cover
71	G5021	Return Spring
72	G5058	Switch Retainer
73	G5017	Shut-Off Lever Spring
74	G4012	Indexing Lever
75	G4009	Shut-Off Lever
76	G5022	Stop Ring
77	G4011	Retard Lever
78	G4032-A	Finger & Shaft Ass'y.
79	G5068	Retard Spring
80	SBSB3008	Screw
81	G5026	Retard Lever
82	G4035-1	"E" Ring
83	G5024	Anti-Skate Spring
84	G3015	Trip Link
85	G5027	Lift Spring
86	G4035-6	"E" Ring
87	G2003	Slide Ass'y.
87A		Escape Lever (Part of Item 97)
88	G5050	Slide Bearing
89	G5049	Slide Bearing Spring
90	SBSB3508	Screw
91	G4030-A	Record Support Guide Bracket
92	SBSB3508	Screw
93	G4007	Record Support Shaft
94		Screw
95	M4055	Oil Tank Holder
96		Oil Lines
97	G4035-5	"E" Ring
98	G5035	Washer
99	YFS4007	Set Screw
100		Steel Ball (3/16" dia)
101	G4035-1	"E" Ring
102		Washer
103	G5055	Safety Spring
104	G5006	Push Rod
105	G4035-1	"E" Ring

Ref. No.	Part No.	Description
106	G5037	Spring
107	G4022	Pawl Lever
108	G5036	Pawl Lever Spring
109	G3004	Gear
110	G5039	Trip Lever Ass'y.
111	WNS3500	Washer
112	G4025	Ejector Bracket
113	SPSP5010Z	Screw
114	G5044	Escape Lever Spring
115		Detent Spring & Link Ass'y.
116		"E" Ring
117		Idler Pulley
118		Washer
119		Washer
120		Idler Pulley Spring
121		"E" Ring
122		Idler Pulley Bracket
123		Idler Pivot Lever
124		Screw
125		Lock Washer
126		Washer
127		Motor Mounting Grommet
128	G1001-2	Motor Board
129		Spacer
130		Lock Washer
131		Screw
132		Motor Spindle
133		Set Screw
134	EM-412A	Motor Assembly
135		Speed Change Cam Ass'y.
136		Ball Bearing
137		Idler Shift Bracket
138		"E" Ring
139		Shift Bracket Spring
140		Washer
141		"E" Ring

PHOTOFACT® Folder

FANON
MODEL 3070

FANON
MODEL 3070

FANON
MODEL 3070

TRADE NAME	Fanon Model 3070
MANUFACTURER	Fanon Electronic Sales Corp., A Div. of Fanon Electronic Industries, Inc., 439 Frelinghuysen Ave., Newark 12, N. J.
TYPE SET	AC Operated 5 Tube Audio Amplifier
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 80 Watts, .8 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KX805

DATE 10 — 61 SET 552 FOLDER 8

SET 552 FOLDER 8

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •		RAYTHEON • SYLVANIA •			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amp. -Phase Inv.	7199	V4	Rectifier	EZ81/6CA4
V2	Output	EL34/6CA7	V5	Rectifier	GZ34/5AR4
V3	Output	EL34/6CA7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FANON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	500	170-17	PRS1810	BR1250	TC82	TD-10-500	TVA-1903	
C2	40	350	170-15	PRS1670	BR4035	TC78	TD-40-350	TVA-1611	
C3A	▲40	350	173-09	AFH3-53	C0400	FP399.5	TMT-3865	TVL-3962	
B	▲10	500							
C	■10	400							
C4A	5	100	172-06	PRS1400	NLW5-150	TT150X5	MLV5-150	TE-1504	
B	5	100		PRS1400	NLW5-150	TT150X5	MLV5-150	TE-1504	
C5	40	10		PTT44	NLW40-10	TT15X40	MLV40-12	TE-1133	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C10	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FANON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	203-70	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	150K	½	203-40	TT-46	B47-150K-S	B11-328	TA184L	Bias Adjust
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R3A	100Ω	2(WW)	209-03	WN-101	A43-100	W11-084	R100L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

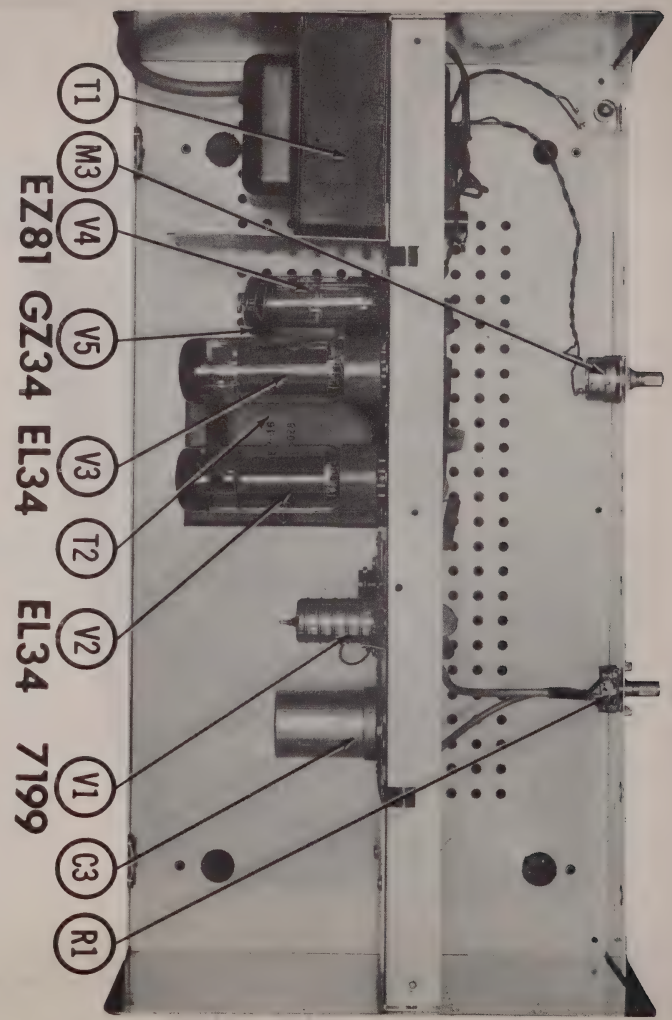
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	220K				R16	270K			
R5	820K				R17	750Ω 5W	PW5-750	5W-SQ-750	
R6	820Ω				R18	10K			
R7	68Ω				R19	33K 2W			
R8	1meg				R20	33K 2W			
R9	100K				R21	33K 2W			
R10	1500Ω				R22	33K 2W			
R11	1500Ω				R23	330K			
R12	100K				R24	470K			
R13	270K				R25	100K			
R14	18K 2W			(15K) *	R26	220K 1W			
R15	15K 2W			(18K) *					

* Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
				FANON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC. 1	SEC. 2						
T1	117V Ⓐ .8A	840VCT Ⓐ .080A DC Tap Ⓐ 340VCT Ⓐ .015A DC	5V Ⓐ 1.9A	251-08					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 4.8A	6.3V (Not Used)							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			FANON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.						
T2	4000Ω CT	110Ω (70V) Tap Ⓐ 16Ω, 8Ω, 4Ω	252-16					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	FANON PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.001A	291-03	1N1763	F4	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FANON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	4A			313004 (3AG 4A 125V)	342001	MDX4	HKP

MISCELLANEOUS

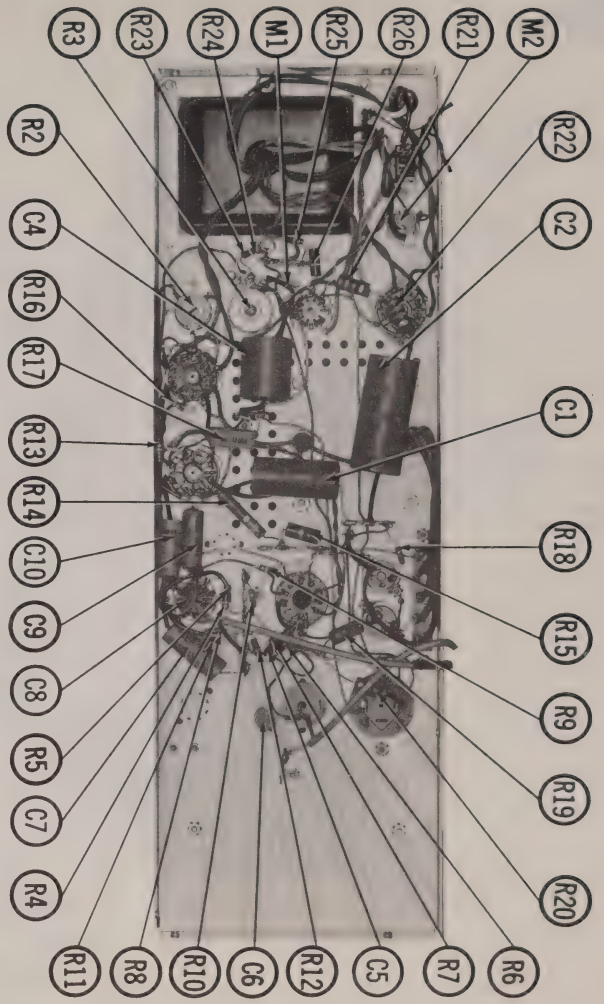
ITEM No.	PART NAME	FANON PART No.	NOTES
M3	Switch		Power Off-On (Rotary Type)

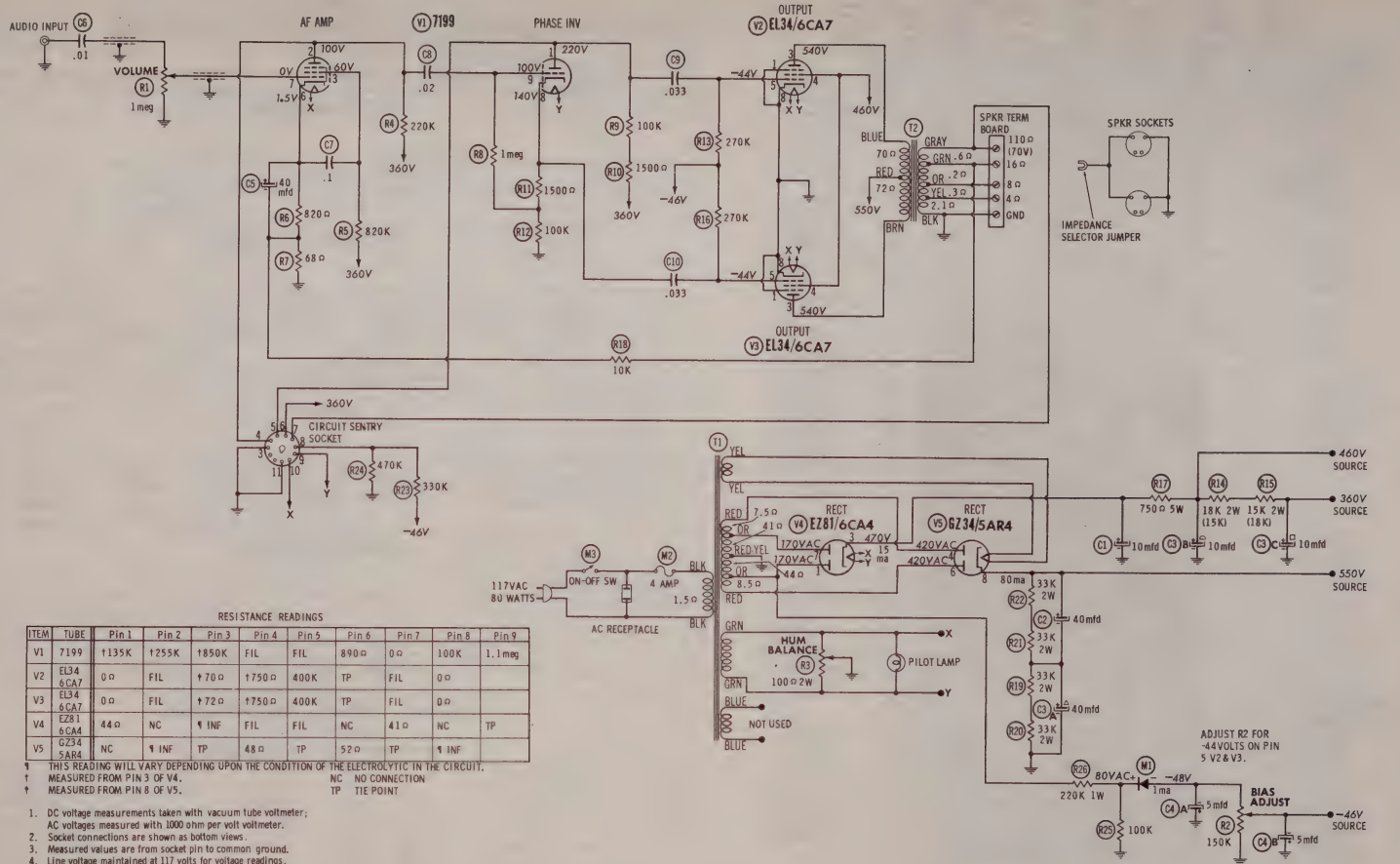
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7199	†135K	†255K	†850K	FIL	FIL	890Ω	0Ω	100K	1.1meg
V2	EL34 6CA7	0Ω	FIL	†70Ω	†750Ω	400K	TP	FIL	0Ω	
V3	EL34 6CA7	0Ω	FIL	†72Ω	†750Ω	400K	TP	FIL	0Ω	
V4	EZ81 6CA4	44Ω	NC	¶ INF	FIL	FIL	NC	41Ω	NC	TP
V5	GZ34 5AR4	NC	¶ INF	TP	48Ω	TP	52Ω	TP	¶ INF	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V4.
† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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FANON MODEL 3070

PHOTOFACT® Folder

**GROMMES
MODEL 28PG**

GROMMES
MODEL 28PG

GROMMES
MODEL 28PG

TRADE NAME	Grommes Model 28PG
MANUFACTURER	Precision Electronics, Inc., 9101 King Ave., Franklin Park, Illinois
TYPE SET	AC Operated 11 Tube Stereo Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 125 Watts, 1.2 Amp. @117 Volts AC

SET 552 FOLDER 9

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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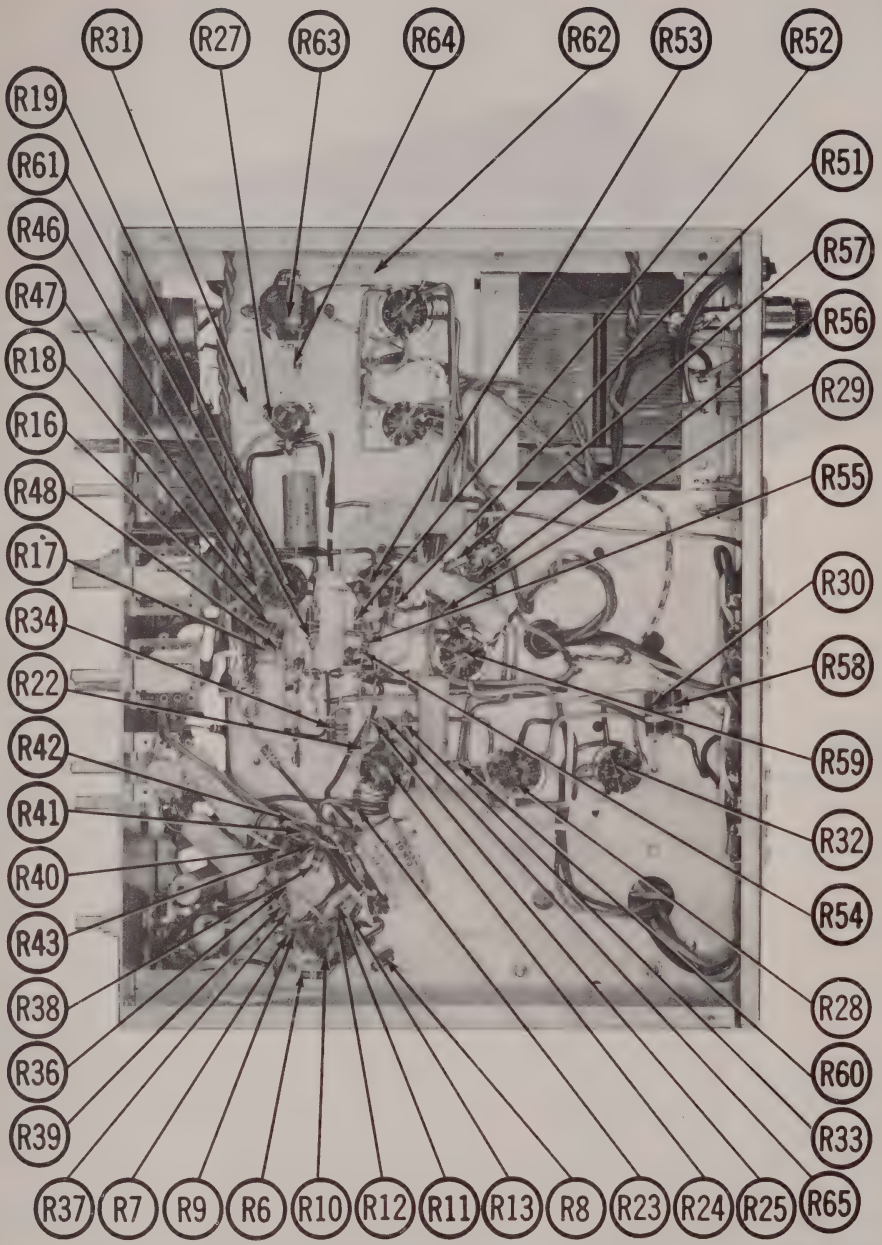
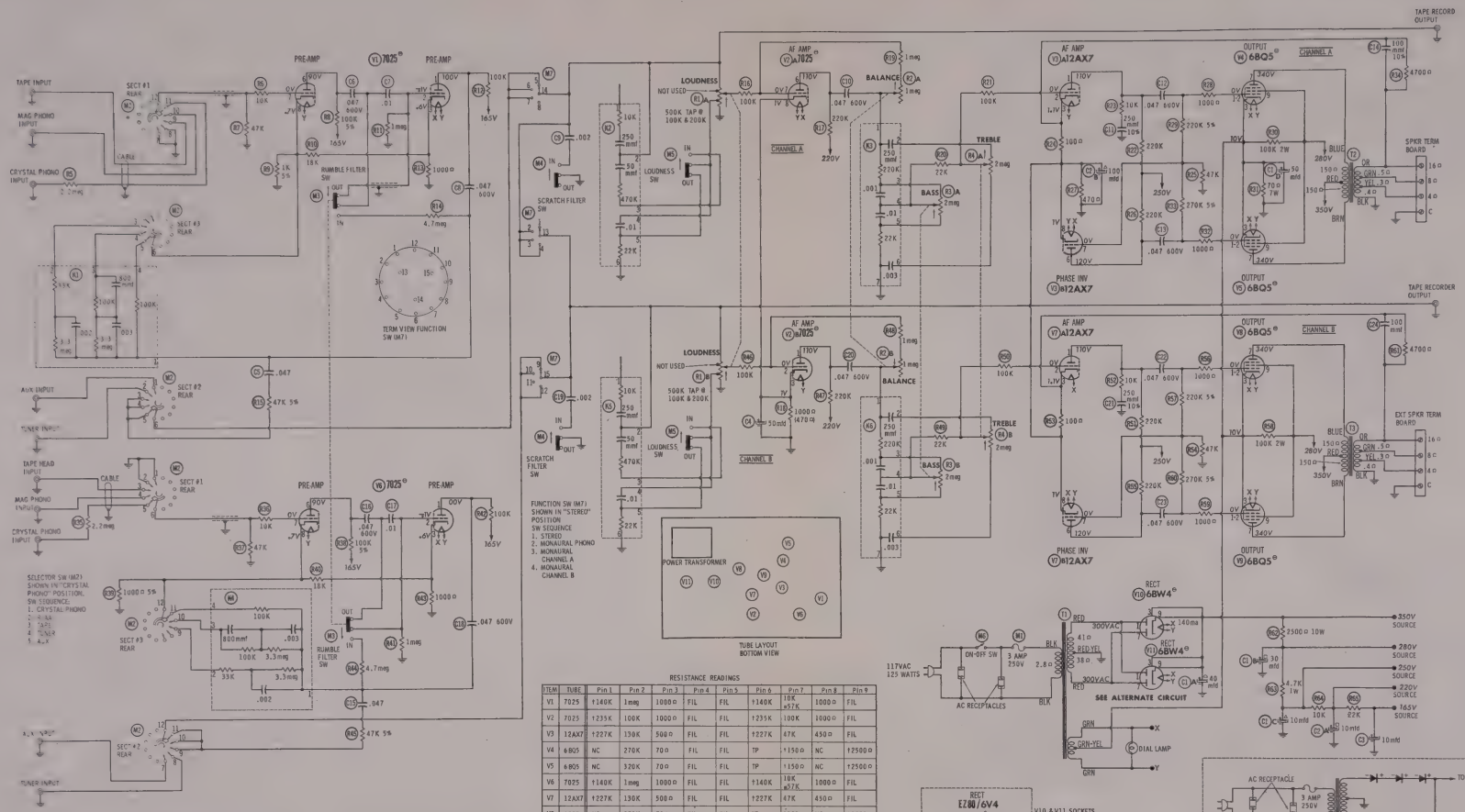


CHASSIS BOTTOM VIEW-RESISTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7025	†140K	1 meg	1000Ω	FIL	FIL	†140K	10K ø57K	1000Ω	FIL
V2	7025	†235K	100K	1000Ω	FIL	FIL	†235K	100K	1000Ω	FIL
V3	12AX7	†227K	130K	500Ω	FIL	FIL	†227K	47K	450Ω	FIL
V4	6BQ5	NC	270K	70Ω	FIL	FIL	TP	†150Ω	NC	†2500Ω
V5	6BQ5	NC	320K	70Ω	FIL	FIL	TP	†150Ω	NC	†2500Ω
V6	7025	†140K	1 meg	1000Ω	FIL	FIL	†140K	10K ø57K	1000Ω	FIL
V7	12AX7	†227K	130K	500Ω	FIL	FIL	†227K	47K	450Ω	FIL
V8	6BQ5	NC	270K	70Ω	FIL	FIL	TP	†120Ω	NC	†2500Ω
V9	6BQ5	NC	320K	70Ω	FIL	FIL	TP	†150Ω	NC	†2500Ω
V10	6BW4	41Ω	NC	TP	FIL	FIL	NC	38Ω	NC	¶47K
V11	6BW4	41Ω	NC	TP	FIL	FIL	NC	38Ω	NC	¶47K

ALL MEASUREMENTS MADE IN "AUX" OR "TUNER" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
■ MEASURED IN EITHER "TAPE" OR "PHONO" POSITION.
† MEASURED FROM PIN 9 OF V10 OR V11.

NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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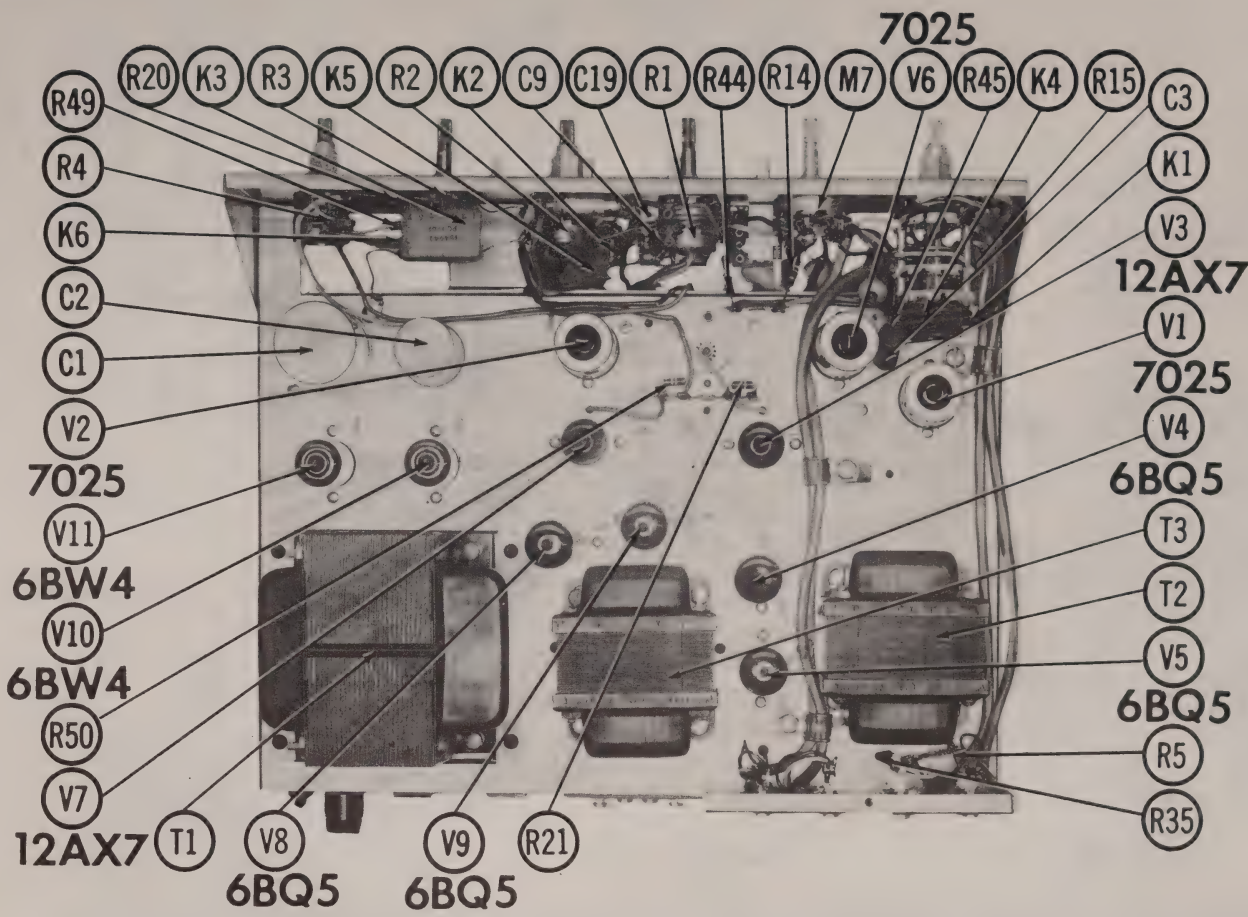
GROMMES MODEL 28PG



CHASSIS-TOP VIEW

GROMMES
MODEL 28PG

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Channel A Preamp.	7025 (12AX7) *
V2	Channel A AF Amp. - Channel B AF Amp.	7025 (12AX7) *
V3	Channel A AF Amp. - Phase Inverter	12AX7
V4	Channel A Output	6BQ5 (EL84) *
V5	Channel A Output	6BQ5 (EL84) *
V6	Channel B Preamp.	7025 (12AX7) *
V7	Channel B AF Amp. - Phase Inverter	12AX7
V8	Channel B Output	6BQ5 (EL84) *
V9	Channel B Output	6BQ5 (EL84) *
V10	Rectifier	6BW4 Ⓘ (EZ80/6V4) *
V11	Rectifier	6BW4 Ⓘ(EZ80/6V4) *

* Alternate
Ⓘ Some Chassis may use Silicon Rectifiers in this Application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	400	NP7D2126	AFH4-113-60	D0630	FP431.35	TMQ-4541	TVL-4705.8	
B	■30	350							
C	▲10	300							
D	50	25							
C2A	■10	250	NP4B1742	AFH2-86-45	B0612	WP272	TMD-2445	TVL-2556	
B	▲100	15							
C3	10	250		PRS1620	BR1045	TC52	TD-10-250	TVA-1504	
C4	50	50		PRS1350	BR505	TC39	TD-50-50	TVA-1308	

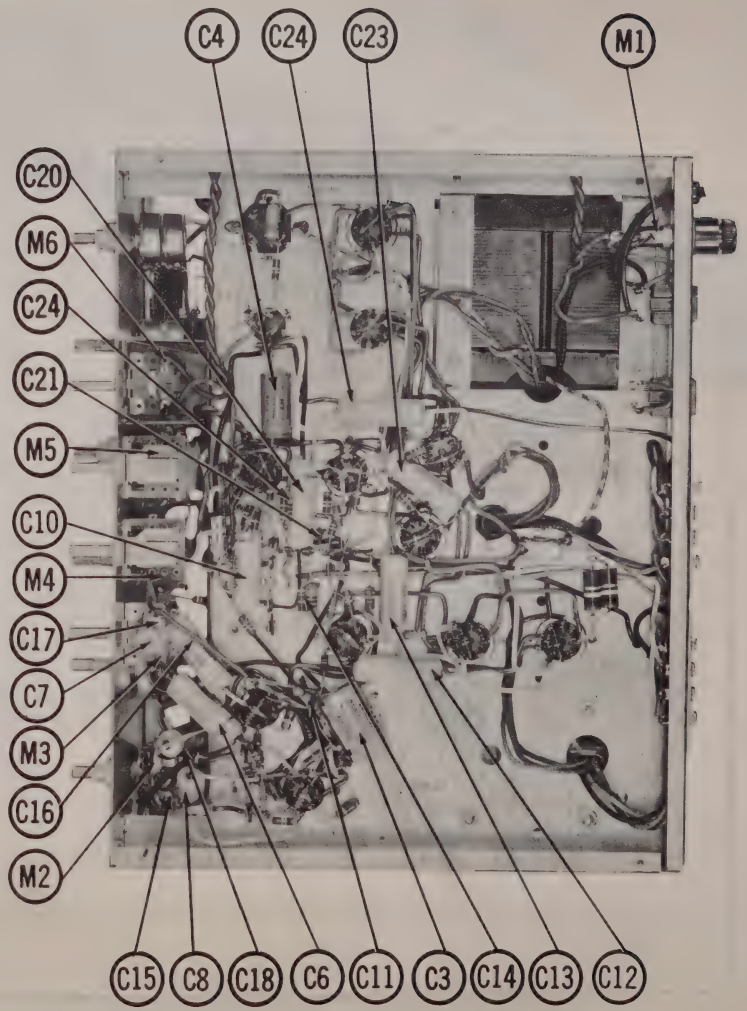
FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C6	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C9	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C10	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C11	250 10%		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C12	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C13	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C14	100 10%		NPO-S1 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C15	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C16	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C19	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C21	250 10%		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C22	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C23	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C24	100		NPO-S1 100	D6-101	L10T1	CCD-101	GP310	10TS-T10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GROMMES PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K*	½	LCK-500KS	BT-160 †			FB55DT25 †	Loudness, Channel A
B	500K*	½		STR-160 †			RU55DT25 †	Loudness, Channel B
C	Shaft			Not Req.			CS3500	
R2A	1meg	½	TCK-1MS	B-69	AD47-1meg-S		FA16L	Balance, Channel A
B	1meg	½		SR-69	Not Req.		RU16L	Balance, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	GROMMES PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R3A	2meg		TCK-2MS	B-76	AD47-2meg-Z		FA26A	Bass, Channel A
B	2meg			SR-76	Not Req.		RU26A	Bass, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	2meg		TCK-2MS	B-76	AD47-2meg-Z		FA26A	Treble, Channel A
B	2meg			SR-76	Not Req.		RU26A	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	

* Taps ⓐ100K & 200K (200K tap not used).
† Use 100K Tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	2.2meg				R36	10K			
R6	10K				R37	47K			
R7	47K				R38	100K 5%			
R8	100K 5%				R39	1000Ω 5%			
R9	1000Ω 5%				R40	18K			
R10	18K				R41	1meg			
R11	1meg				R42	100K			
R12	100K				R43	1000Ω			
R13	1000Ω				R44	4.7meg			
R14	4.7meg				R45	47K 5%			
R15	47K 5%				R46	100K			
R16	100K				R47	220K			
R17	220K				R48	1meg			
R18	1000Ω			(470Ω) *	R49	22K			
R19	1meg				R50	100K			
R20	22K				R51	220K			
R21	100K				R52	10K			
R22	220K				R53	100Ω			
R23	10K				R54	47K			
R24	100Ω				R55	220K			
R25	47K				R56	1000Ω			
R26	220K				R57	220K 5%			
R27	470Ω				R58	100K 2W			
R28	1000Ω				R59	1000Ω			
R29	220K 5%				R60	270K 5%			
R30	100K 2W				R61	4700Ω			
R31	70Ω 7W	P10-70	7W-SQ-70		R62	2500Ω 10W	PW10-2.5K	10W-SQ-2.5K	
R32	1000Ω				R63	4700Ω 1W			
R33	270K 5%				R64	10K			
R34	4700Ω				R65	22K			
R35	2.2meg								

* Alternate Value.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	GROMMES PART No.	REPLACEMENT DATA
K1	Preamp. Comp.	800mmf, .002mfd, .003mfd, 33K, (2) 100K, (2) 3.3meg	PC-1960	
K2	Loudness Comp.	50mmf, 250mmf, .01mfd, 10K, 22K, 470K	PC-1963	
K3	Tone Comp.	250mmf, .001mfd, .003mfd, .01mfd, 22K, 220K	PC-1961	
K4	Preamp. Comp.	800mmf, .002mfd, .003mfd, 33K, (2) 100K, (2) 3.3meg	PC-1960	
K5	Loudness Comp.	50mmf, 250mmf, .01mfd, 10K, 22K, 470K	PC-1963	
K6	Tone Comp.	250mmf, .001mfd, .003mfd, .01mfd, 22K, 220K	PC-1961	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	GROMMES PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ⓐ 1.2A	600VCT ⓐ.140A DC	6.3VCT ⓐ4.7A	TP-13		PM8422 ①			① Use original brackets. Tape 5V Winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	GROMMES PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7900Ω CT	16Ω Tap ⓐ 8Ω, 4Ω	TO-15U					
T3	7900Ω CT	16Ω Tap ⓐ 8Ω, 4Ω	TO-15U					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GROMMES PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 250V			312003 (3AG 3A 250V)	342001	AGC 3	HKP

MISCELLANEOUS

ITEM No.	PART NAME	GROMMES PART No.	NOTES
M2	Switch		Function Selector (Rotary Type)
M3	Switch		Rumble Filter (Latching, Slide Type)
M4	Switch		Scratch Filter (Latching, Slide Type)
M5	Switch		Loudness (Latching, Slide Type)
M6	Switch		Power Off-On (Latching, Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

FOLDER 9

GROMMES
MODEL 28PG

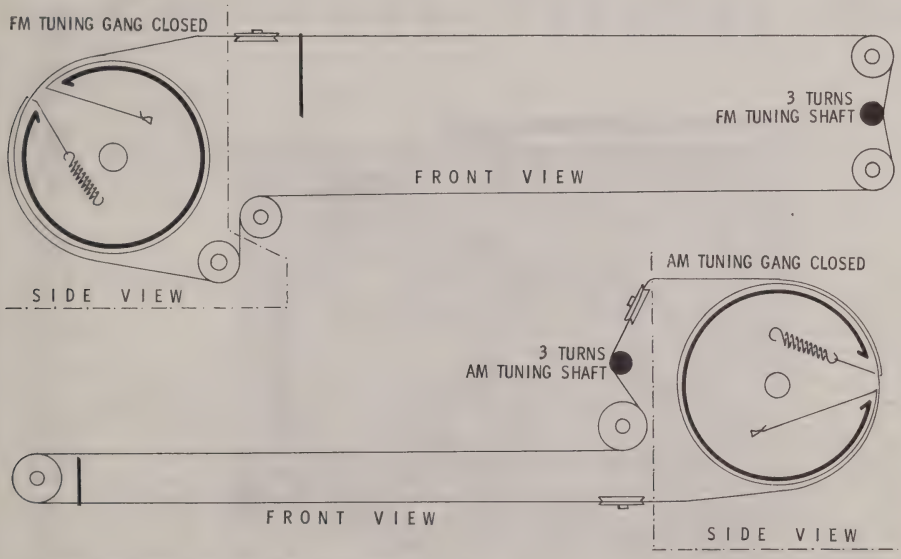
PHOTOFACT® Folder

**KNIGHT MODEL
KN-125B (35DU777)**

KNIGHT MODEL
KN-125B (35DU777)

TRADE NAME	Knight Model KN-125B (35DU777)		
MANUFACTURER	Allied Radio Corp., 100 N. Western Ave., Chicago 80, Illinois		
TYPE SET	AC Operated 15 Tube FM-AM Tuner		
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles	RATING	60 Watts, .55 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 – 1600KC	FREQ. MOD.	88 – 108MC

DIAL CORD STRINGING



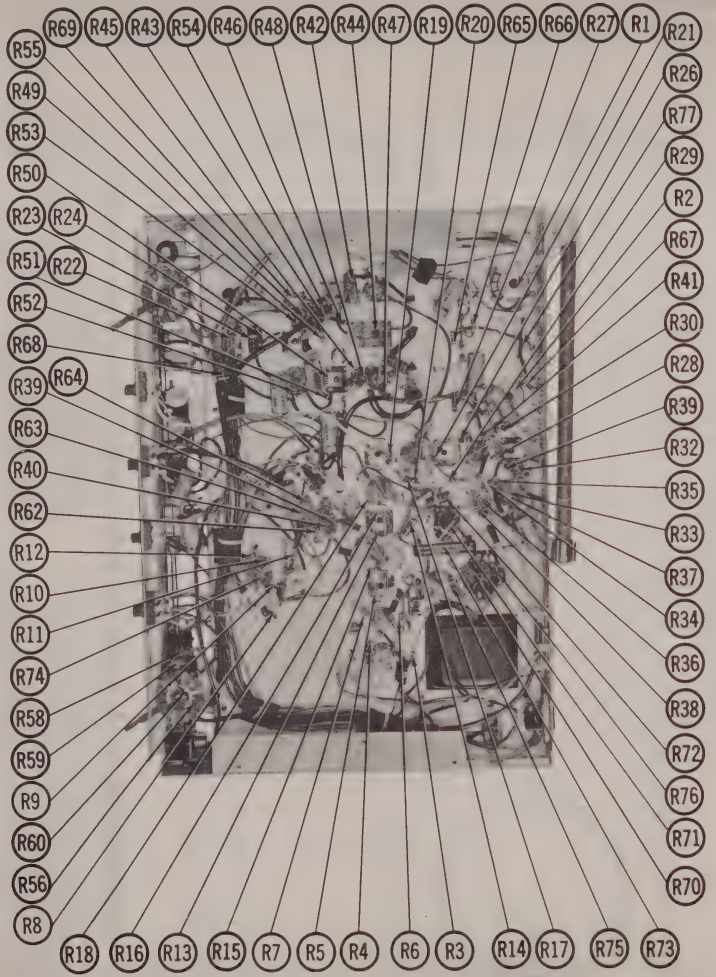
KNIGHT MODEL
KN-125B (35DU777)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

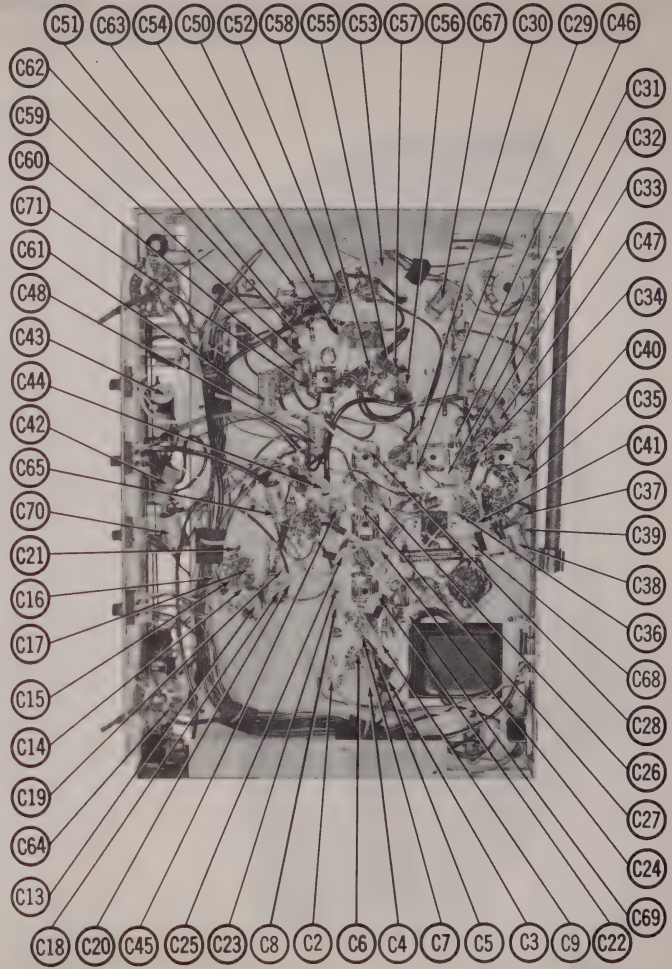
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KL749

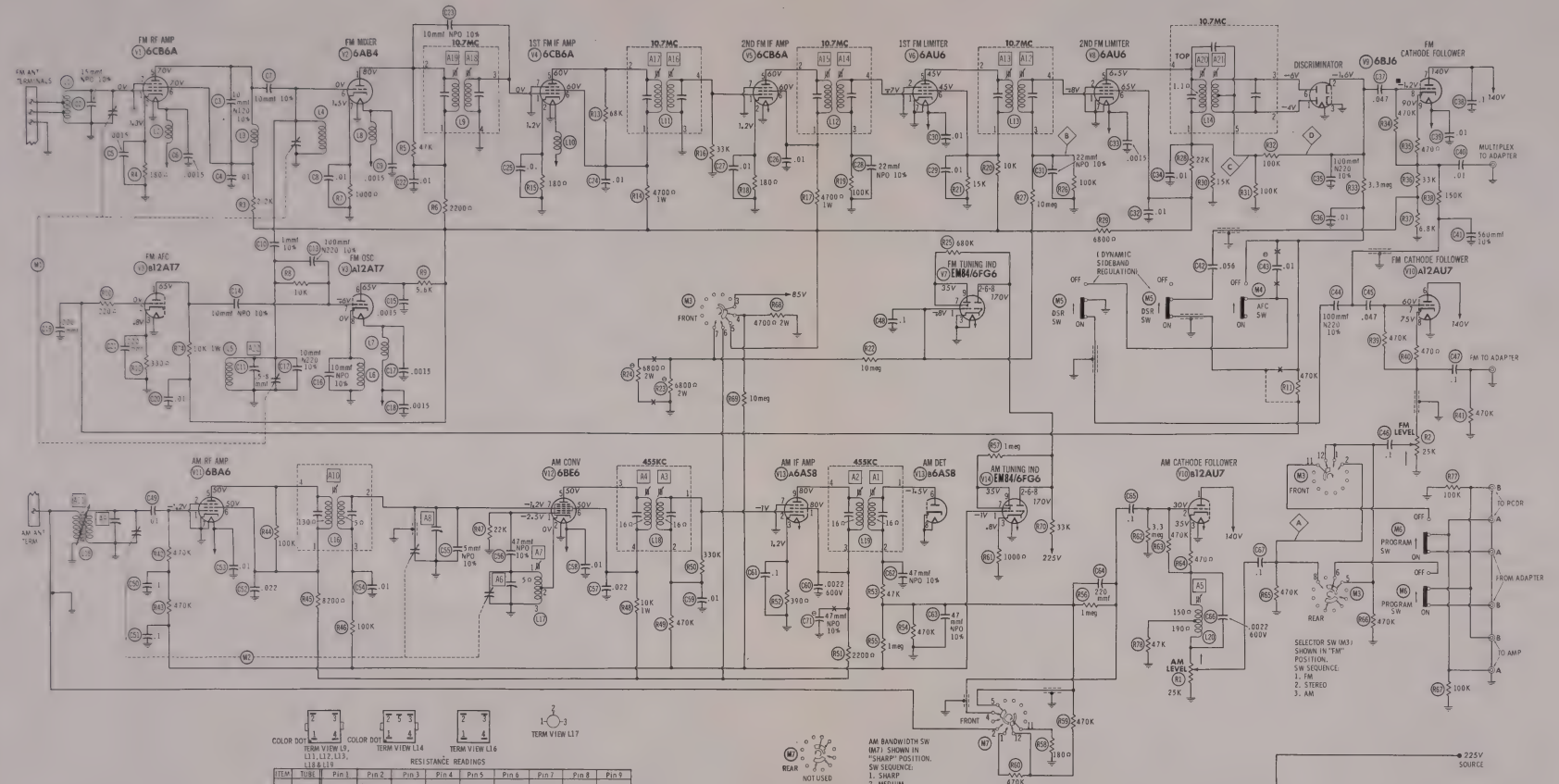
SET 552 FOLDER 10



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	.1Ω	180Ω	FIL	FIL	↑4800Ω	↑4800Ω	0Ω		
V2	6AB4	↑4800Ω	0Ω	FIL	FIL	0Ω	.1Ω	1000Ω		
V3	12AT7	↑12K	470K + 4meg	330Ω	FIL	FIL	↑8200Ω	10K	.1Ω	FIL
V4	6CB6A	.1Ω	180Ω	FIL	FIL	↑7300Ω	↑7300Ω	0Ω		
V5	6CB6A	.1Ω	180Ω	FIL	FIL	↑7300Ω	↑7300Ω	0Ω		
V6	6AU6	100K	0Ω	FIL	FIL	↑3000Ω	↑3000Ω	0Ω		
V7	EM84 6FG6	1.1meg	NC	0Ω	FIL	FIL	↑33K	↑715K	NC	↑715K
V8	6AU6	100K	0Ω	FIL	FIL	FIL	↑10K	↑10K	0Ω	
V9	6BJ8	100K	200K	0Ω	FIL	FIL	100K	↑1500Ω	510K	40K
V10	12AU7	↑1500Ω	490K	20K	FIL	FIL	↑1500Ω	495K	25K	FIL
V11	6BA6	2.4meg	0Ω	FIL	FIL	↑11K	↑11K	0Ω		
V12	6BE6	22K	.6Ω	FIL	FIL	↑13K	↑13K	1.6meg		
V13	6AS8	↑4900Ω	1.9meg	390Ω	FIL	FIL	520K	0Ω	0Ω	↑4900Ω
V14	EM84 6FG6	1.5meg	NC	1000Ω	FIL	FIL	↑33K	↑1meg	NC	↑1meg
V15	EZ80 6V4	94Ω	TP	¶15K	FIL	FIL	TP	90Ω	NC	NC

- ⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
- DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
- ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS MADE IN "STEREO" POSITION WITH AFC OFF AND DSR OFF AND BANDWIDTH BROAD UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
■ MEASURED FROM CATHODE. ↑ MEASURED FROM PIN 3 OF V15.
▲ MEASURED WITH AFC ON. NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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KNIGHT MODEL KN-125B (35DU777)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
A1 thru A5, A7, A10, A20, A21... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A6, A8, A9, A22..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A12 thru A19..... GENERAL CEMENT #5097, 8727
WALSCO #2515

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ 30% AM)	(AM) Tuning gang fully open.	AC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	455KC (10KC 30% AM)	"	"	A5	Adjust for MINIMUM deflection.
3.	"	1400KC	1400KC	"	A6	Adjust for maximum deflection.
4.	"	600KC	600KC	"	A7	"
5.	High side thru .01mfd to AM antenna terminal. Low side to chassis.	1400KC	1400KC	"	A8, A9	"
6.	"	600KC	600KC	"	A10, A11	Adjust for maximum deflection. A11 is adjusted by sliding ring along loopstick. Repeat Steps 3 thru 6.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru .01mfd to pin 6 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A12, A13, A14, A15, A16, A17, A18, A19	Adjust for maximum deflection.
8.	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A20	"
9.	"	"	"	DC probe to point (D). Common to chassis.	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	High side thru .01mfd to pin 6 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (B). Low side to chassis.	A12, A13, A14, A15, A16, A17, A18, A19	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
8.	"	"	"	Vert. amp. thru 47K to point (C). Low side to chassis.	A20	"
9.	"	"	"	Vert. amp. to point (D). Low side to chassis.	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A20 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	High side thru 270Ω to 300Ω FM antenna terminal. Low side to chassis.	88MC (Unmod.)	(FM) 88MC	DC probe to point (B). Common to chassis.	L5	Adjust for maximum deflection.
11.	"	108MC	108MC	"	A22	Adjust for maximum deflection.
12.	"	88MC	88MC	"	L4, L1	Adjust for maximum deflection.

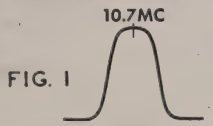


FIG. 1

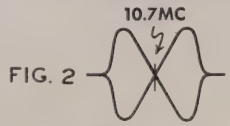
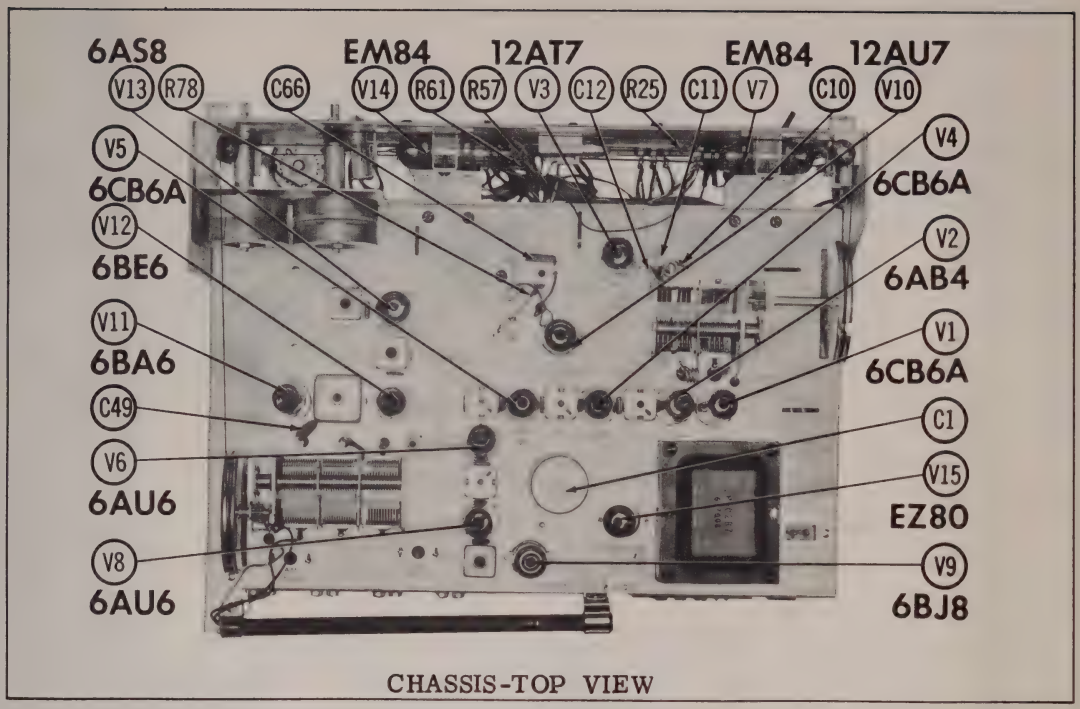
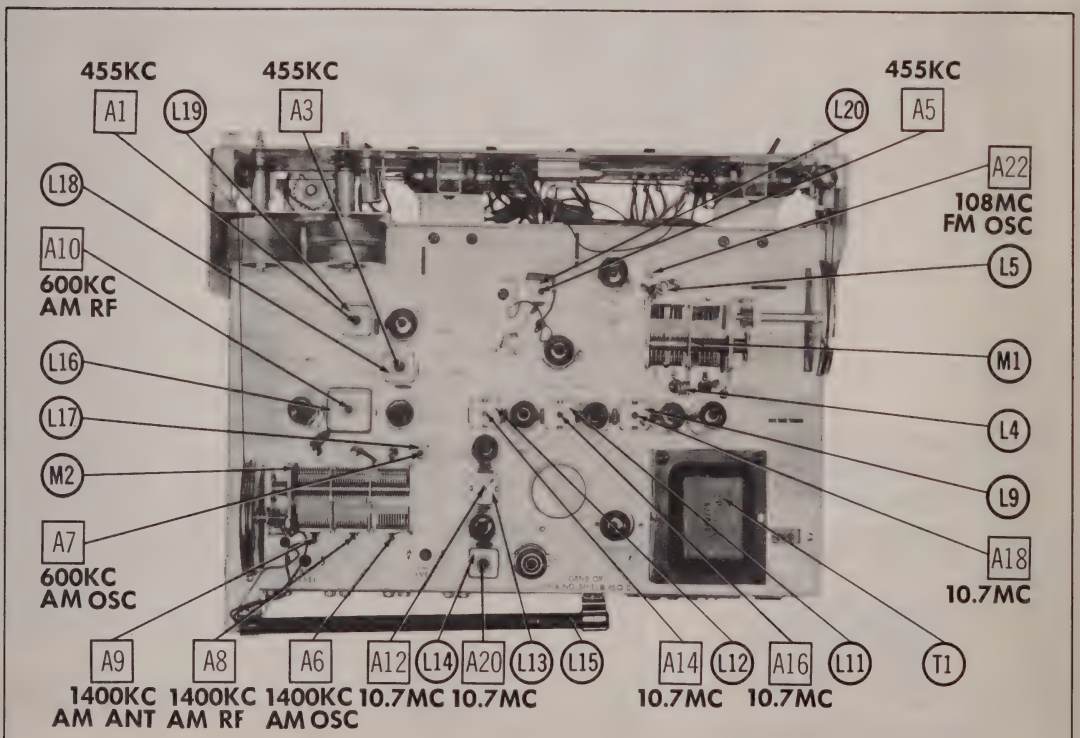


FIG. 2



CHASSIS-TOP VIEW



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6CB6A	V10	FM Cathode Follower-AM Cathode Follower	12AU7
V2	FM Mixer	6AB4	V11	AM RF Amplifier	6BA6
V3	FM Osc.-FM AFC	12AT7	V12	AM Converter	6BE6
V4	1st FM IF Amplifier	6CB6A	V13	AM IF Amp.-AM Det.	6AS8
V5	2nd FM IF Amplifier	6CB6A	V14	AM Tuning Indicator	EM84/6FG6
V6	1st FM Limiter	6AU6	V15	Rectifier	EZ80/6V4
V7	FM Tuning Indicator	EM84/6FG6			
V8	2nd FM Limiter	6AU6			
V9	FM Discriminator-FM Cathode Follower	6BJ8			

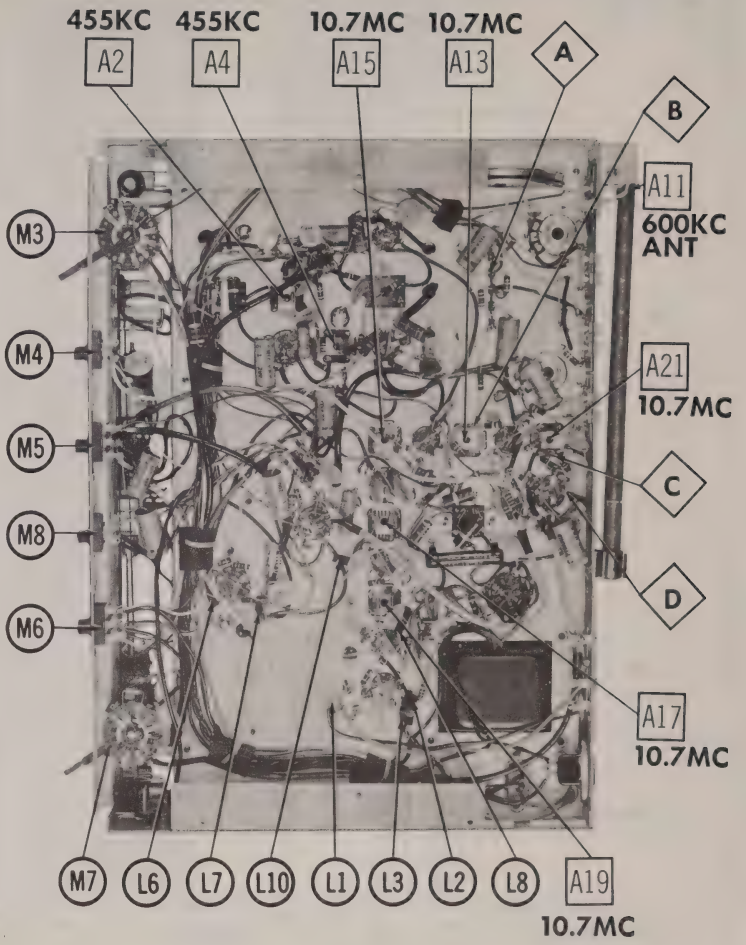
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	300		AFH4-02-10	D0022	FP420.36	TMQ-4161	TVL-4580	
B	■40	300							
C	▲30	250							
D	20	200							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	15 NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C3	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C4	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C6	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C7	10 10%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C10	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C11	.5-8			829-10				
C12	10 N220 10%					*		10TCR-Q10
C13	100 N220 10%					*		10TCR-T10
C14	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C15	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C16	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C17	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C18	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C19	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	22 NPO 10%		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	22 NPO 10%		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C34	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	100 N220 10%					*		10TCR-T10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C38	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C42	.056 200V		P684CM-056		DPMS6S56	6DP-3-563	GEM-6156	6PS-S56
C43	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	100 N220 10%					*		10TCR-T10
C45	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C46	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C47	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C48	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C49	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C50	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C51	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C52	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	2TM-S22
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C55	5 NPO 10%		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-550	10TCC-V50
C56	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C57	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	2TM-S22
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C60	.0022 600V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C61	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C62	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-447	CNO-447	10TCC-Q47
C63	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-447	CNO-447	10TCC-Q47
C64	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C65	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C66	.0022 600V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C67	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-601	2TM-P10
C68	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C69	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C70	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C71	47 NPO 10%	Note 1	NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	25K	½	RP-253B	TT-26	B47-25K-S	B13-120	TA253L	AM Level
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R2A	25K	½	RP-253B	TT-26	B47-25K-S	B13-120	TA253L	FM Level
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2200Ω				R29	6800Ω			
R4	180Ω				R30	15K			
R5	47K				R31	100K			
R6	2200Ω				R32	100K			
R7	1000Ω				R33	3.3meg			
R8	10K				R34	470K			
R9	5600Ω				R35	470Ω			
R10	220Ω				R36	33K			
R11	470K				R37	6800Ω			
R12	330Ω				R38	150K			
R13	68K				R39	470K			
R14	4700Ω 1W				R40	470Ω			
R15	180Ω				R41	470K			
R16	33K				R42	470K			
R17	4700Ω 1W				R43	470K			
R18	180Ω				R44	100K			
R19	100K				R45	8200Ω			
R20	10K				R46	100K			
R21	15K				R47	22K			
R22	10meg				R48	10K 1W			
R23	6800Ω 2W			Note 1	R49	470K			
R24	6800Ω 2W			Note 1	R50	330K			
R25	680K				R51	2200Ω			
R26	100K				R52	390Ω			
R27	10meg				R53	47K			
R28	22K				R54	470K			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R55	1meg				R67	100K			
R56	1meg				R68	4700Ω 2W			
R57	1meg				R69	10meg			
R58	180Ω				R70	33K			
R59	470K				R71	2200Ω 2W			Note 2
R60	470K				R72	2200Ω 2W			Note 2
R61	1000Ω				R73	1500Ω 10W	PW10-1500	10W-SQ-1500	
R62	3.3meg				R74	10K 1W			
R63	470K				R75	47Ω			
R64	470Ω				R76	47Ω			
R65	470K				R77	100K			
R66	470K				R78	47K			

Note 1. When R23 is 3400Ω 4W, R24 is not used.
Note 2. When R71 is 1200Ω 10W, R72 is not used.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		KNIGHT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	FM Ant.						
L2	Fil. Choke (.68uh)		BC-560	4590	RTC-8514	T803	
L3	RF Choke (3.3uh)		BC-564	4608	RTC-8518	T858	
L4	FM RF						
L5	FM Osc.						
L6	RF Choke (.68uh)		BC-560	4590	RTC-8514	T803	
L7	Fil. Choke (.68uh)		BC-560	4590	RTC-8514	T803	
L8	Fil. Choke (.68uh)		BC-560	4590	RTC-8514	T803	
L9	1st FM IF		FM-254	1463	RTC-8599	T633	
L10	Fil. Choke (.68uh)		BC-560	4590	RTC-8514	T803	
L11	2nd FM IF		FM-254	1463	RTC-8599	T633	
L12	3rd FM IF		FM-254	1463	RTC-8599	T633	
L13	4th FM IF		FM-254	1463	RTC-8599	T633	
L14	Discriminator		FM-253	1464	RTC-8665	T634	
L15	Loopstick		BC-418	705-A		T532	
L16	AM RF			A-320-RF			
L17	AM Osc.		BC-393	70-OSC	RTC-8647	T512	
L18	1st AM IF		BC-352	12-C1	RTC-8632	T607	
L19	2nd AM IF		BC-353	12-C2	RTC-8633	T608	
L20	10KC Filter						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	KNIGHT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .55A	400VCT Ⓐ .055A DC	6.3V Ⓐ 5.7A	LP-0287					

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	Tuning Cap.		FM, 3 Gang
M2	Tuning Cap.		AM, 3 Gang (Ant. 14—432mmf, RF 14—432mmf, Osc. 8—152mmf)
M3	Switch		Function Selector, (Lever Type Actuates Wafer)
M4	Switch		AFC (SPST Slide Type)
M5	Switch		DSR (Dual DPDT Slide Type)
M6	Switch		Program (Dual DPDT Slide Type)
M7	Switch		AM Band Switch (Lever Type Rotary)
M8	Switch		Power Off-On (SPST Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

MOTOROLA MODELS SH21E, SH21N (Ch. HS-829, HS-830)

MOTOROLA MODELS SH21E, SH21N (Ch. HS-829, HS-830)

MODEL SH21N

MOTOROLA MODELS SH21E, SH21N (Ch. HS-829, HS-830)

TRADE NAME	Motorola Models SH21E, SH21N (Ch. HS-829, HS-830)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated 6 Tube Stereo Phono Amplifier with 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 75 Watts, .72 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER VM33RC - SEE SIMILAR V-M1587 - PHOTOFACT SET 527 Folder 14

SET 552 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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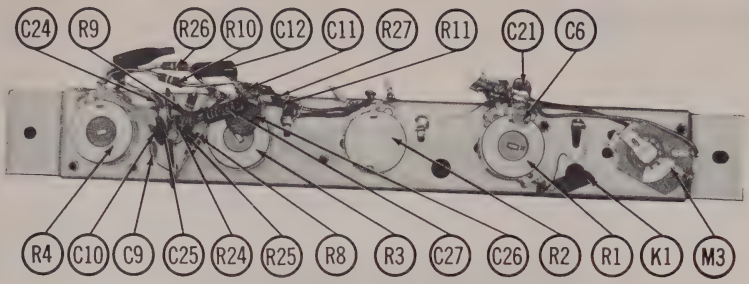

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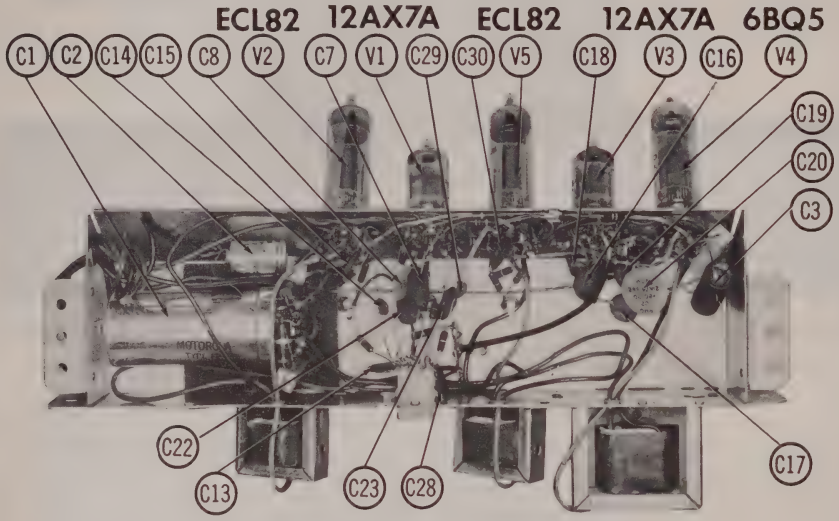

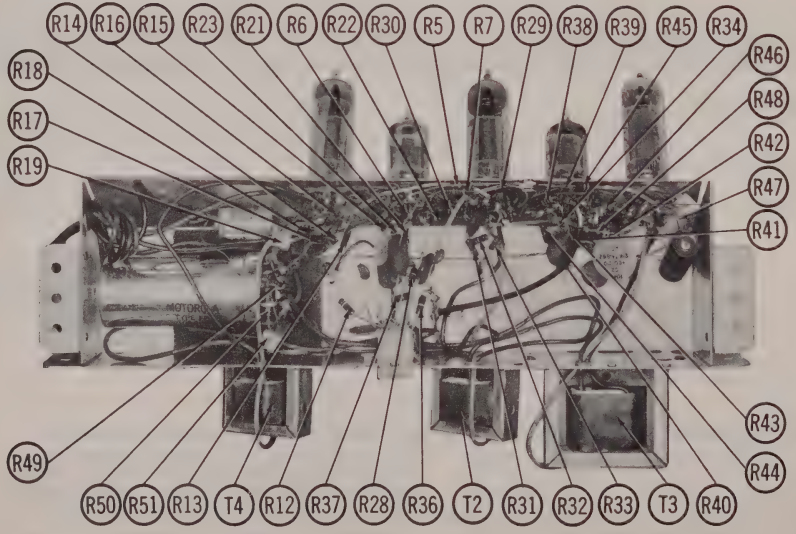

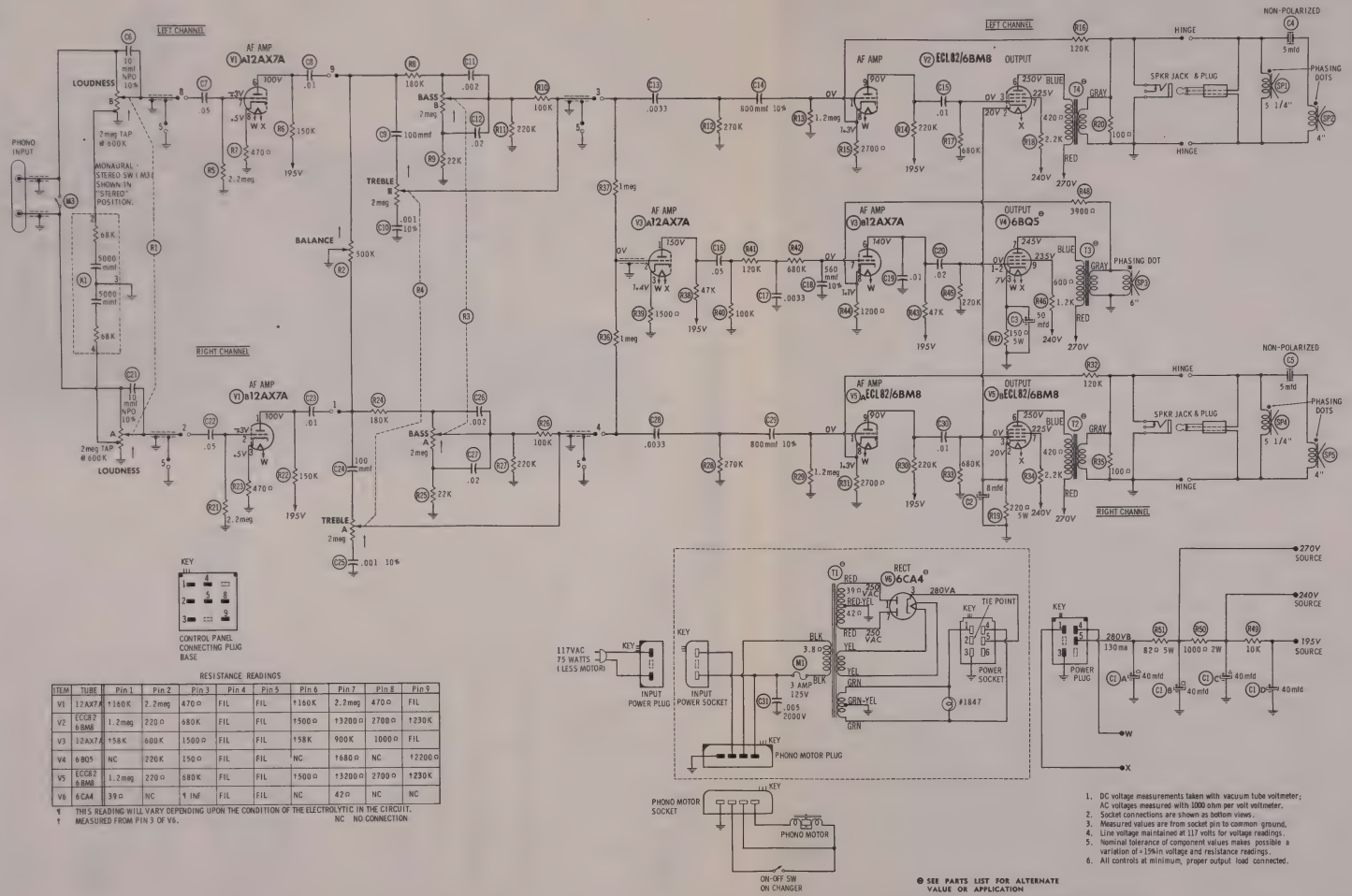

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†160K	2.2meg	470Ω	FIL	FIL	†160K	2.2meg	470Ω	FIL
V2	ECC82 6BM8	1.2meg	220Ω	680K	FIL	FIL	†500Ω	†3200Ω	2700Ω	†230K
V3	12AX7A	†58K	600K	1500Ω	FIL	FIL	†58K	900K	1000Ω	FIL
V4	6BQ5	NC	220K	150Ω	FIL	FIL	NC	†680Ω	NC	†2200Ω
V5	ECC82 6BM8	1.2meg	220Ω	680K	FIL	FIL	†500Ω	†3200Ω	2700Ω	†230K
V6	6CA4	39Ω	NC	¶ INF	FIL	FIL	NC	42Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA MODELS SH21E, SH21N (Ch. HS-829, HS-830)

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7A	V4	Center Channel Output	6BQ5 (EL84) *
V2	Left Channel AF Amp. - Left Channel Output	ECL82/6BM8	V5	Right Channel AF Amp. - Right Channel Output	ECL82/6BM8
V3	Center Channel AF Amp.	12AX7A	V6	Rectifier	6CA4 (EZ81) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	23K842239	AFH4-04-50	D0034	FP420.38	TMQ-4298	TVL-4635.3	
B	■40	350							
C	▲40	350							
D	40	350							
C2	8	25	23C80119A02	PRS1405	BBR8-150	TC41	TD-8-150	TVA-1405	
C3	50	10	23C80119A01	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	
C4	5	25NP	23B643970	PRS7405	BBR4-150	TCN505		TVANS-1303.1¶	
C5	5	25NP	23B643970	PRS7405	BBR4-150	TCN505		TVANS-1303.1¶	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C7	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C11	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C12	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C13	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C14	800 10%		DI-820	DD-801	BYA10T82	CCD-801	GP382	10TS-T80
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C17	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C18	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C21	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C22	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C25	.001 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C26	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C27	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C28	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C29	800 10%		DI-820	DD-801	BYA10T82	CCD-801	GP382	10TS-T80
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.005 2000V			DD30-502	HVC20D5	3CCD-502	2HV-247	BL-D50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg 600K Tap	1/2	18D60116A03	BT-174 *			FA26T75	Loudness, Right Channel
B	2meg 600K Tap	1/2		STR-174 *			RU26T75	Loudness, Left Channel
C	Shaft			Not Req.			CS3500	
R2	500K	1/2	18D60116A09					Balance
R3A	2meg	1/2	18D60116A01	B-76	AD47-2meg-Z		FA26A	Bass, Right Channel
B	2meg	1/2		SR-76	Not Req.		RU26A	Bass, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	2meg	1/2	18D60116A01	B-76	AD47-2meg-Z		FA26A	Treble, Right Channel
B	2meg	1/2		SR-76	Not Req.		RU26A	Treble, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	

* Use 500K Tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	2.2meg			
R6	150K			
R7	470Ω			
R8	180K			
R9	22K			
R10	100K			
R11	220K			
R12	270K			
R13	1.2meg			
R14	220K			
R15	2700Ω			
R16	120K			
R17	680K			
R18	2200Ω			
R19	220Ω 5W	PW5-220	5W-SQ-220	

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R20	100Ω			
R21	2.2meg			
R22	150K			
R23	470Ω			
R24	180K			
R25	22K			
R26	100K			
R27	220K			
R28	270K			
R29	1.2meg			
R30	220K			
R31	2700Ω			
R32	120K			
R33	680K			
R34	2200Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R35	100Ω				R44	1200Ω			
R36	1meg				R45	220K			
R37	1meg				R46	1200Ω			
R38	47K				R47	150Ω 5W	PW5-150	5W-SQ-150	
R39	1500Ω				R48	3900Ω			
R40	100K				R49	10K			
R41	120K				R50	1000Ω 2W			
R42	680K				R51	82Ω 5W	PW5-82	5W-SQ-82	
R43	47K								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Loudness Comp.	5000mmf, 5000mmf, 68K, 68K	51B644164	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .72A	500VCT @ .130A	6.3V @ .9A	25C60395A01B ①					① Alternate Part #25C60395A01.
	SEC. 3	SEC. 4	SEC. 5						
	6.3V@ 2.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω	6-8Ω	25K647133J ①	A-2902 ②	A-3850	22S86	S-63X	① Alternate Part #25K647133.
T3	6200Ω	6-8Ω	25K647125H ③	A-2902 ②	A-3849 ②	22S88	S-56Z	② Drill new mounting hole(s).
T4	6200Ω	6-8Ω	25K647133J ①	A-2902 ②	A-3850	22S86	S-63X	③ Alternate Part #25K647125.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5 1/4"	PM	6-8Ω	50D645585	52A21Z8	
SP2	4"	PM	6-8Ω	50K647115	4A1Z8	
SP3	6"	PM	6-8Ω	50K647086	6A21Z8	
SP4	5 1/4"	PM	6-8Ω	50D645585	52A21Z8	
SP5	4"	PM	6-8Ω	50K647115	4A1Z8	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 125V P/T	65A646112		315003 (3AG 3A 125V P/T)		MDV3	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	MOTOROLA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	59C60335A01	59C60336A04 * or 59C60336A05 ① (LP)	17	Not Req.	26S	S1-1 *	8TA4-S	N-8TA-S *	① Alternate Part No.
		59C60336A05 * (78RPM)				S3-3 *			

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Switch Spindle	40K847136 47K842187	Function, Wafer Type 45 RPM

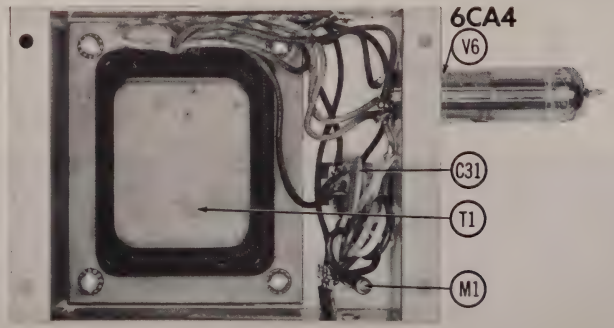
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36K647040	Loudness, Bass, Treble
Knob	36K847036	Balance
Knob	36K647039	Function Selector
Cabinet	16E60370A01	Black, Model SH21E
Cabinet	16E60370A02	Brown, Model SH21N
Base	15E646984	Brown, Model SH21N
Base	15K647070	Charcoal, Model SH21E
Handle	55A60516A01	Black, Model SH21E
Handle	55A60416A02	Brown, Model SH21N

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



POWER CHASSIS

PHOTOFACT® Folder with CIRCUITRACE®

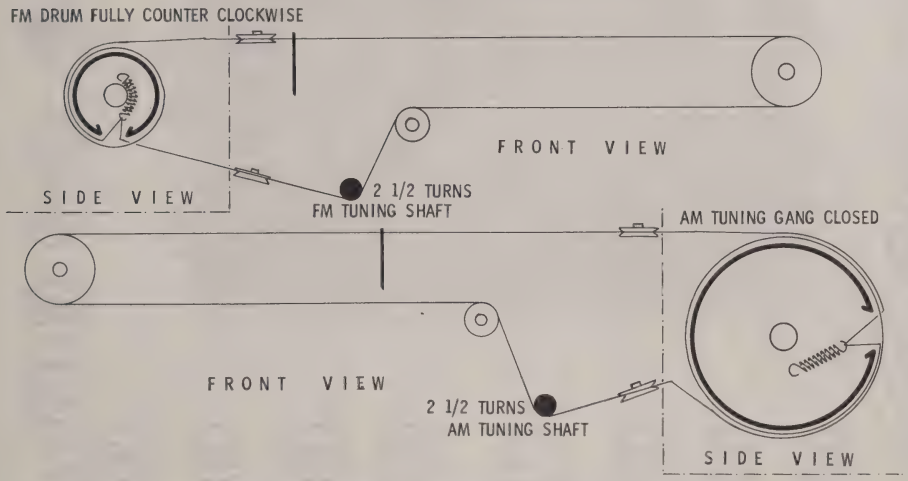
**PILOT
MODEL 480**

PILOT
MODEL 480

PILOT
MODEL 480

TRADE NAME	Pilot Model 480		
MANUFACTURER	Pilot Radio Corp., 37-06 36th Street, Long Island City 1, N. Y.		
TYPE SET	AC Operated 10 Tube FM-AM Tuner		
POWER SUPPLY	105 – 120 Volts AC, 60 Cycles	RATING	55 Watts, .5 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 – 1720KC	FREQ. MOD.	88 – 108MC

DIAL CORD STRINGING

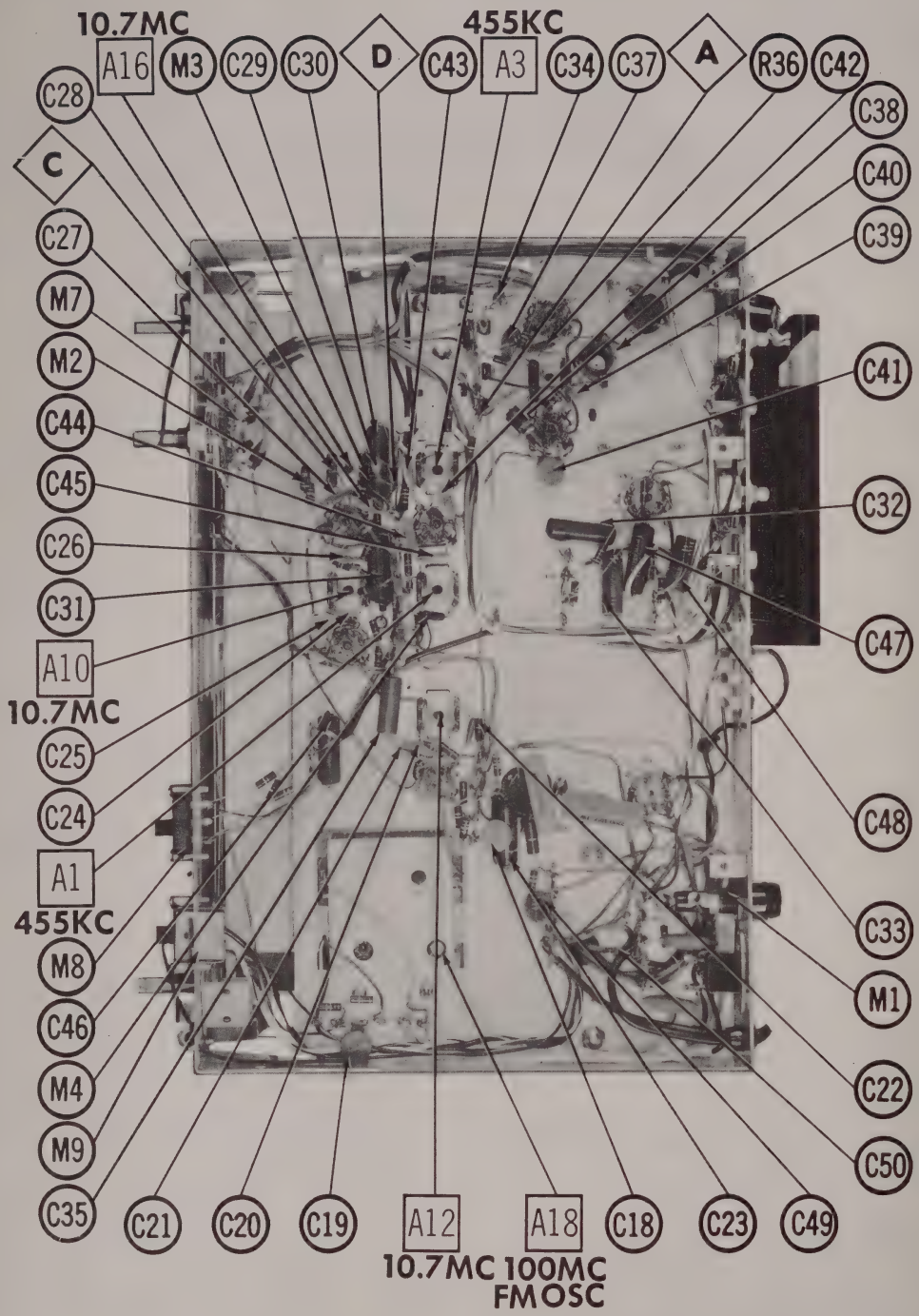


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

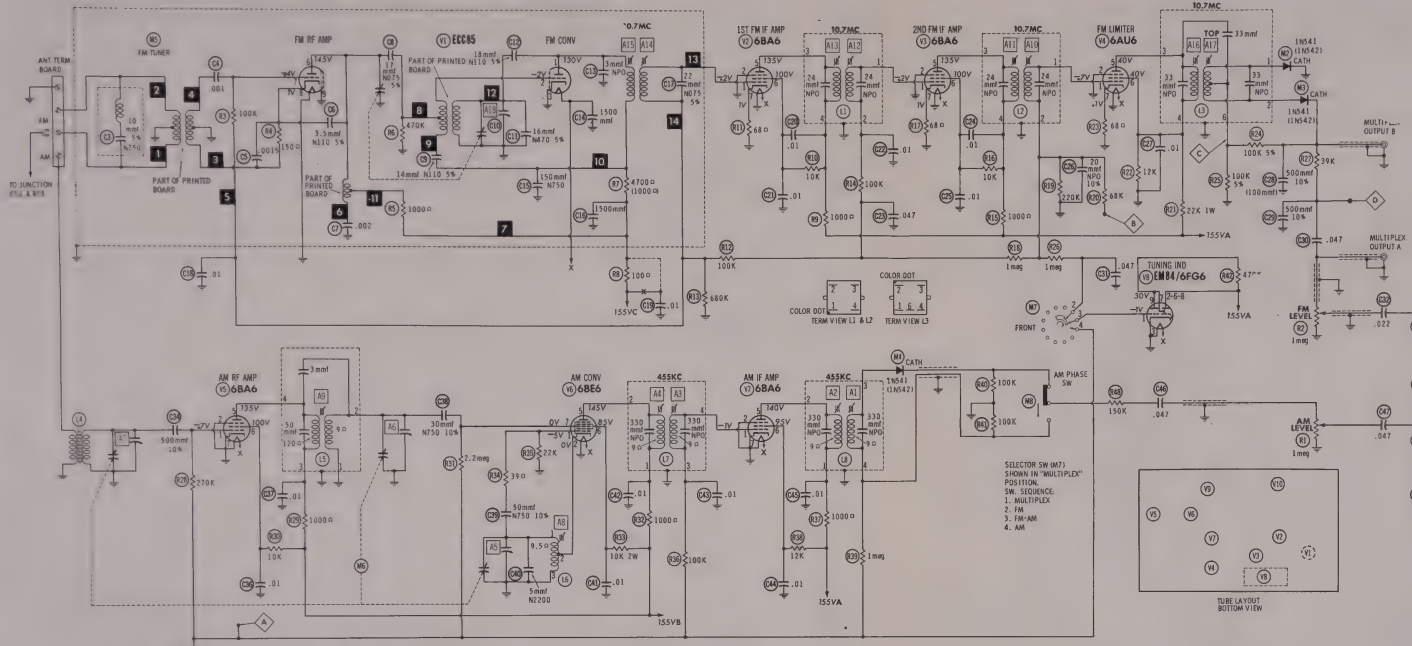
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KL724

SET 552 FOLDER 12



CHASSIS BOTTOM VIEW-ALIGN., CAPACITOR & MISC. IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
CIRCUITRACE

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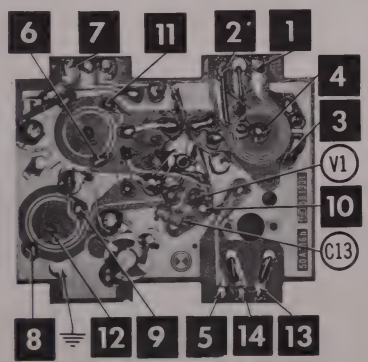


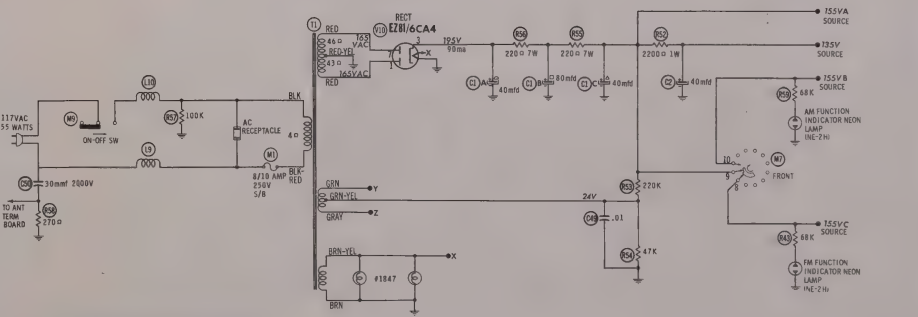
A Howard W. Sams CIRCUITRACE Photo

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	↑5200Ω	470K	0Ω	FIL	FIL	↑1500Ω	700K	150Ω	0Ω
V2	6BA6	600K	0Ω	FIL	FIL	↑1500Ω	↑11K	68Ω		
V3	6BA6	700K	0Ω	FIL	FIL	↑1500Ω	↑11K	68Ω		
V4	6AU6	220K	0Ω	FIL	FIL	↑18K	↑18K	68Ω		
V5	6BA6	1.4meg	0Ω	FIL	FIL	↑1400Ω	↑11K	0Ω		
V6	6BE6	22K	.6Ω	FIL	FIL	↑1400Ω	↑11K	3.3meg		
V7	6BA6	1.2meg	0Ω	FIL	FIL	↑1400Ω	↑13K	0Ω		
V8	EM84 6FG6	1.2meg	NC	0Ω	FIL	FIL	↑440Ω	↑470K	NC	↑470K
V9	12AU7A	↑2600Ω	230K	10K	FIL	FIL	↑2700Ω	230K	10K	FIL
V10	EZ81 6CA4	43Ω	NC	¶150K	FIL	FIL	NC	46Ω	NC	NC

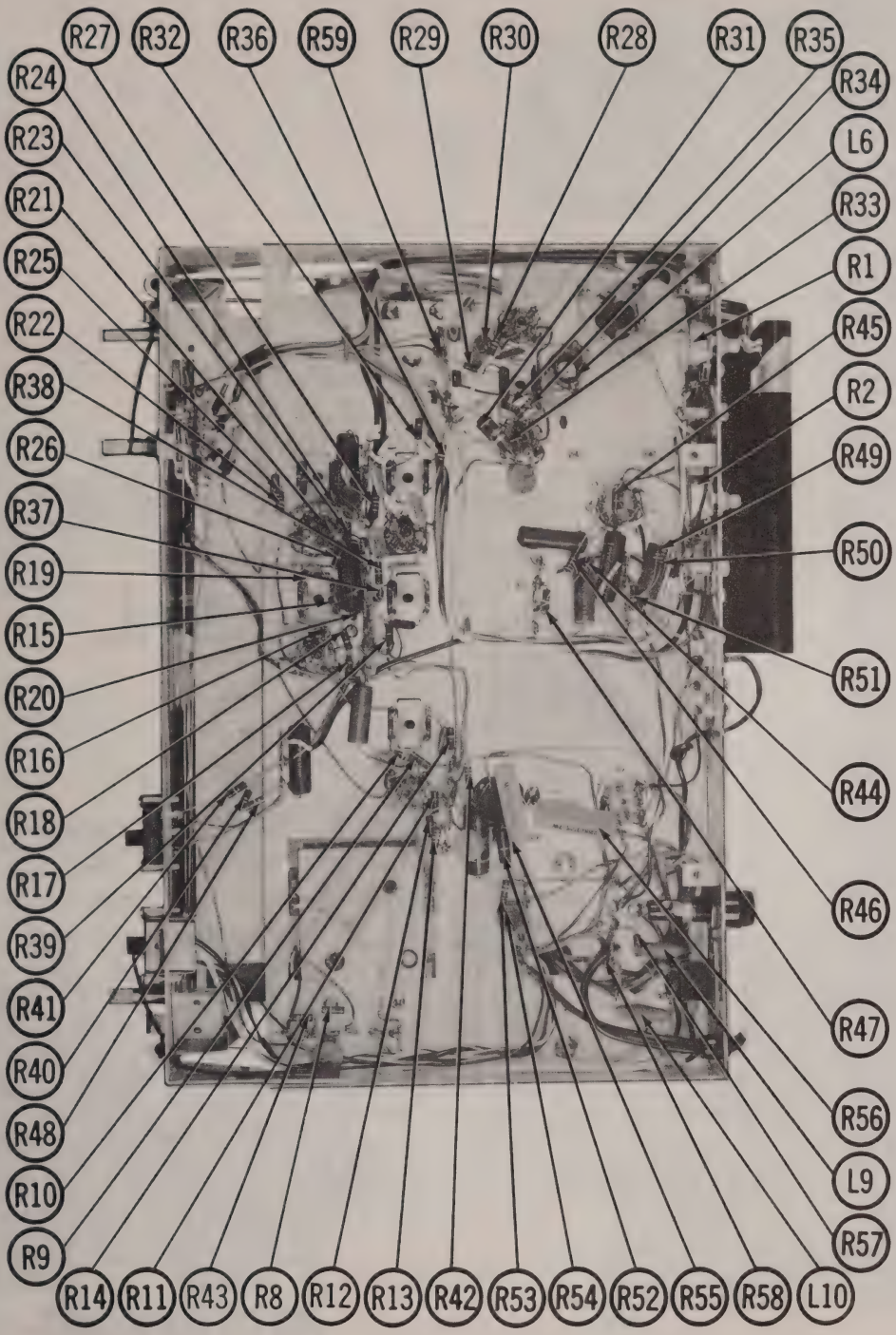
ALL MEASUREMENTS MADE IN "AM-FM" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↑ MEASURED FROM PIN 3 OF V10. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

PILOT
MODEL 480



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested alignment tools:

A1 thru A4, A10 thru A13	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A7, A18	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A8	GENERAL CEMENT #8721, 8722 WALSCO #2519
A9, A16, A17	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A14, A15	GENERAL CEMENT #8282, 8606, 8606-L, 9091 WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ 30% AM)	(AM) Tuning gang fully open.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	High side thru 470Ω to AM antenna terminal. Low side to chassis.	1600KC	1600KC	"	A5, A6, A7	"
3.	"	600KC	600KC	"	A8, A9	Adjust for maximum deflection. Repeat Steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓑ. Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
5.	"	"	"	DC probe thru 1meg to point Ⓒ. Common to chassis.	A16	" " " "
6.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓑ. Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
5.	"	"	"	Vert. amp. thru 47K to point Ⓒ. Low side to chassis.	A16	"
6.	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 150Ω in each lead.	100MC	(FM) 100MC	DC probe to point Ⓑ. Common, to chassis.	A18	Adjust for maximum deflection.

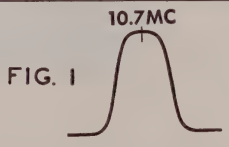


FIG. 1

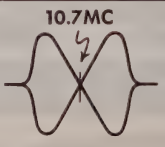


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85	V6	AM Converter	6BE6
V2	1st FM IF Amplifier	6BA6	V7	AM IF Amplifier	6BA6
V3	2nd FM IF Amplifier	6BA6	V8	Tuning Indicator	EM84/6FG6
V4	FM Limiter	6AU6	V9	FM Cath. Follower-AM Cath. Follower	12AU7A
V5	AM RF Amplifier	6BA6	V10	Rectifier	EZ81/6CA4

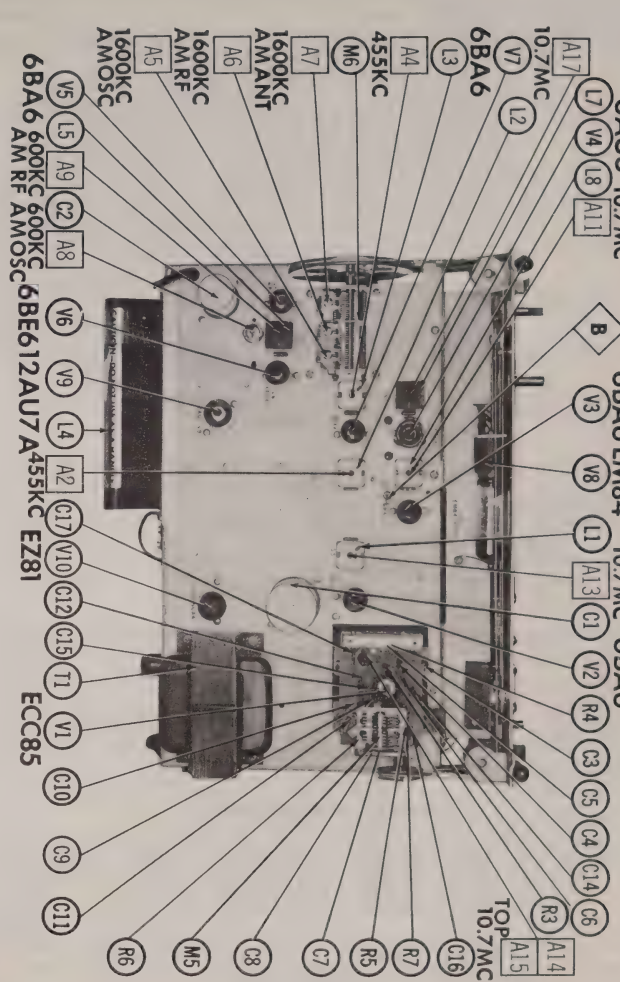
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	300	24-123		C0194	FP326.62	TMT-3304	TVL-3583	
B	■80	250							
C	▲40	250							
C2	40	250	24-176	AFH1-29	XA0291	FP146	TMS-1450	TVL-1519	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10 N750 5%	Note 1	N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C4	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C5	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C6	3.5 N110 5%					*		
C7	.002		SI 2000	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C8	17 N075 5%					*		
C9	14 N110 5%					*		
C10								
C11	16 N470 5%					*		
C12	18 N110 5%					*		
C13	3 NPO		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C14	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C15	150 N750		N750-SI 150	TCN-150	C10T1U	CCTN-151	CN7-315	10TCU-T15
C16	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C17	22 N075 5%					*		
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	20 NPO 10%		NPO-SI 20	DTZ-20	C10Q2C	CCTO-200	CNO-522	10TCC-Q20
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	500	(100) †	DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C29	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C30	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C31	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C32	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C33	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C34	500 10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C35	.1 100V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	30 N750 10%		N750-DI 33	TCN-30	C10Q3U	CCTN-330	CN7-433	10TCU-Q33
C39	50 N750 10%		N750-DI 47	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C40	5 N2200	(3 N3300) †				*		
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C46	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C47	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C48	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C49	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C50	30 2000V	#29-133	HVD-30-33	DD30-300	HVA20Q33	3CCD-330	2DY-433	30GA-Q30

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Includes RF Choke Wound on this Capacitor.
† Alternate Value.
# Pilot Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	39-39	AB-69	A47-1meg-S	Q11-137	U54	AM Level
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R2A	1meg	½	39-39	AB-69	A47-1meg-S	Q11-137	U54	FM Level
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	100K				R32	1000Ω			
R4	150Ω				R33	10K 2W			
R5	1000Ω				R34	39Ω			
R6	470K				R35	22K			
R7	4700Ω			(1000Ω) *	R36	100K			
R8	100Ω				R37	1000Ω			
R9	1000Ω				R38	12K			
R10	10K				R39	1meg			
R11	68Ω				R40	100K			
R12	100K				R41	100K			
R13	680K				R42	470K			
R14	100K				R43	68K			
R15	1000Ω				R44	220K			
R16	10K				R45	120Ω			
R17	68Ω				R46	470Ω			
R18	1meg				R47	10K			
R19	220K				R48	150K			
R20	68K				R49	220K			
R21	22K 1W				R50	470Ω			
R22	12K				R51	10K			
R23	68Ω				R52	2200Ω 1W			
R24	100K 5%				R53	220K			
R25	100K 5%				R54	47K			
R26	1meg				R55	220Ω 7W	PW10-220	10W-SQ-220	
R27	39K				R56	220Ω 7W	PW10-220	10W-SQ-220	
R28	270K				R57	100K			
R29	1000Ω				R58	270Ω			
R30	10K				R59	68K			
R31	2.2meg								

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PILOT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	2nd FM IF	273-151	FM-254	1463	RTC-8599	T633	
L2	3rd FM IF	273-151	FM-254	1463	RTC-8599	T633	
L3	Discriminator	279-78	FM-253	1464	RTC-8665	T634	

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PILOT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L4	Loopstick	270-58	BC-419	705-A		T532	
L5	AM RF	71-49					
L6	AM Osc.	72-96	BC-393	70-O6C	RTC-8647	T512	
L7	1st AM IF	273-129	BC-352	12-C1	RTC-8632	T607	
L8	2nd AM IF	273-129	BC-353	12-C2	RTC-8633	T608	
L9	Line Choke(1.6uh)	75-19	BC-562	4604	RTC-8516	T856	
L10	Line Choke (1.6uh)	75-19	BC-562	4604	RTC-8516	T856	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PILOT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .5A	330VCT @ .090A DC	6.3V@ 3.8A	55-78					
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @ .3A								

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PILOT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	8/10A 250V S/B	111-16		313.800 (3AG 8/10A 250V)	342001	MDL 8/10	HKP

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		PILOT PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1N541 *			1N295	Discriminator (Pigtail)
M3	1N541 *			1N295	
M4	1N541 *			1N541	AM Detector (Pigtail)

* Alternate Type 1N542.

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M5	FM Tuner	110-628	Complete
M6	Tuning Cap.	26-68	AM, 3 Gang (Ant. 24—489mmf, RF 30—506mmf, Osc. 21—165mmf)
M7	Switch	100-162	Function Selector (Rotary Wafer Type)
M8	Switch	101-29	AM Phase (SPST Slide Type)
M9	Switch	101-29	Power Off-On (SPST Slide Type)

WIRING DATA

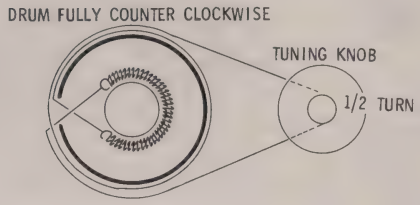
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

SONY
MODEL TR-510

SONY
MODEL TR-510

DRIVE CORD STRINGING



SONY
MODEL TR-510

TRADE NAME	Sony Model TR-510
IMPORTER	Sony Corp. of America, 514 Broadway, New York 12, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC (No Signal, Min. Volume)
	10MA @ 9 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A7..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A5.....GENERAL CEMENT #9440

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	Adjust for maximum output. A6 is adjusted by moving coil turns along ferrite core.
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

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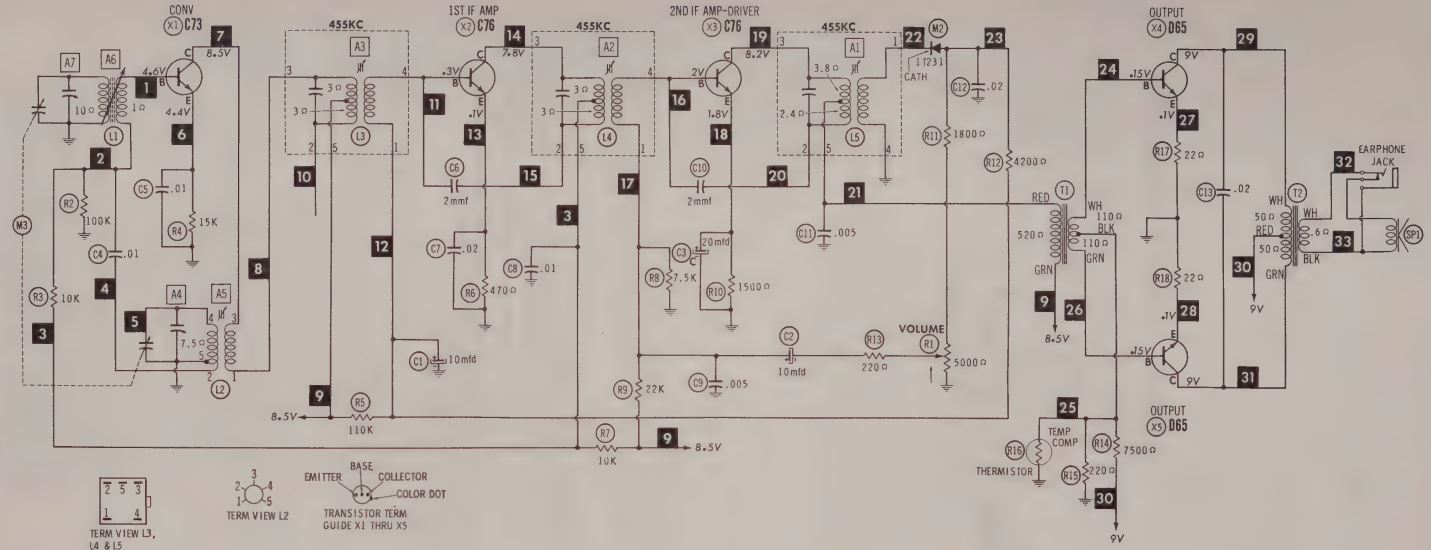
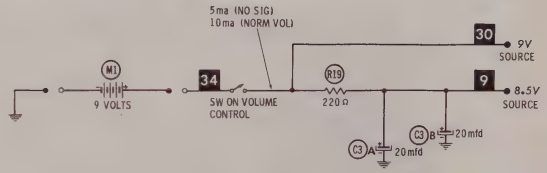
KF789

SET 552 FOLDER 13





RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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SONY
MODEL TR-510

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	C73	Converter	2N412		NPN
X2	C76	1st IF Amplifier	2N410		NPN
X3	C76	2nd IF Amp, -Driver	2N410		NPN
X4	D65	Output	2N408		NPN
X5	D65	Output	2N408		NPN

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	SONY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	3			NLW10-6	TT3X10	MLV10-3	TE-1053	
C2	10	3			NLW10-6	TT3X10	MLV10-3	TE-1053	
C3A	20	10							
B	20	10							
C	20	10							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C5	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C6	2		NPO-DI 2, 2	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C7	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C8	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C9	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C10	2		NPO-DI 2, 2	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C11	.005		C80V502AM	DDM-502	H-05D5	CCD-502	TA-250	TG-D50
C12	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	100K				R11	1800Ω			
R3	10K				R12	4200Ω			
R4	15K				R13	220Ω			
R5	110K				R14	7500Ω			
R6	470Ω				R15	220Ω			
R7	10K				R16	Temp. Comp.			
R8	7500Ω				R17	22Ω			
R9	22K				R18	22Ω			
R10	1500Ω				R19	220Ω			

PRINTED BOARD

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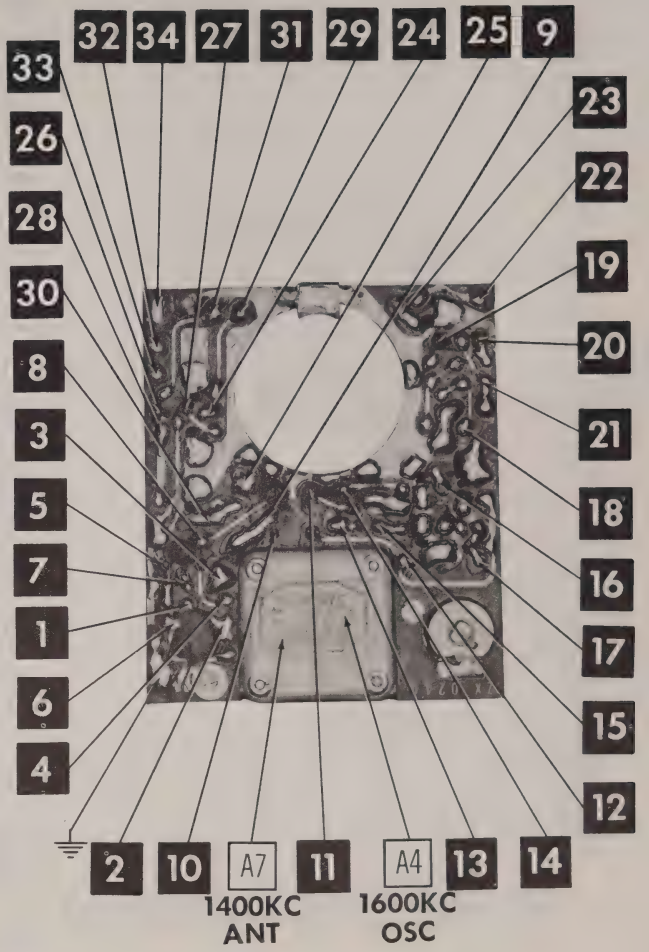


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SONY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Osc.						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.4	1	T1-002					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	500Ω CT	6-8Ω	TX-002					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONY PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	SONY PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	BL-006P		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SONY PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1T231			1N60	Detector (Pigtail)

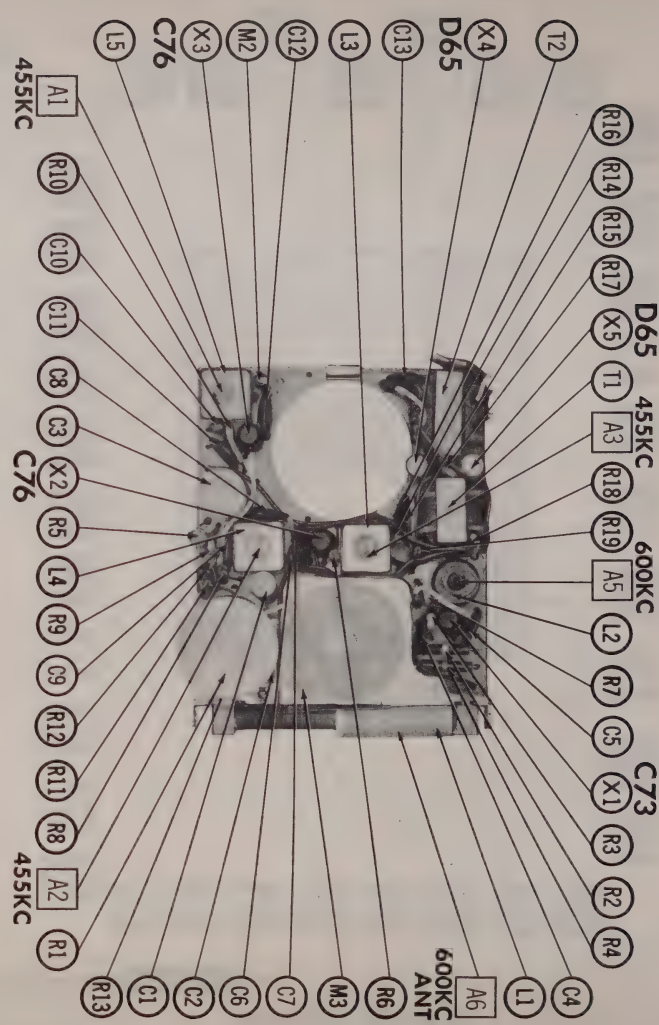
MISCELLANEOUS

ITEM No.	PART NAME	SONY PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



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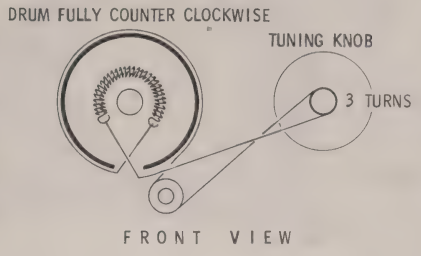
TOSHIBA
MODEL 6TP-385

TOSHIBA
MODEL 6TP-385

DRIVE CORD STRINGING



TOSHIBA
MODEL 6TP-385

TRADE NAME	Toshiba Model 6TP-385
IMPORTER	Transistor World Corp., 52 Broadway, New York 4, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	7MA @ 9 Volts DC (No Signal, Min. Volume)
	12MA @ 9 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A7.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	Adjust for maximum output. Adjust A6 by moving coil along ferrite core.
4.	"	1400KC	1400KC	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

SET 552 FOLDER 14

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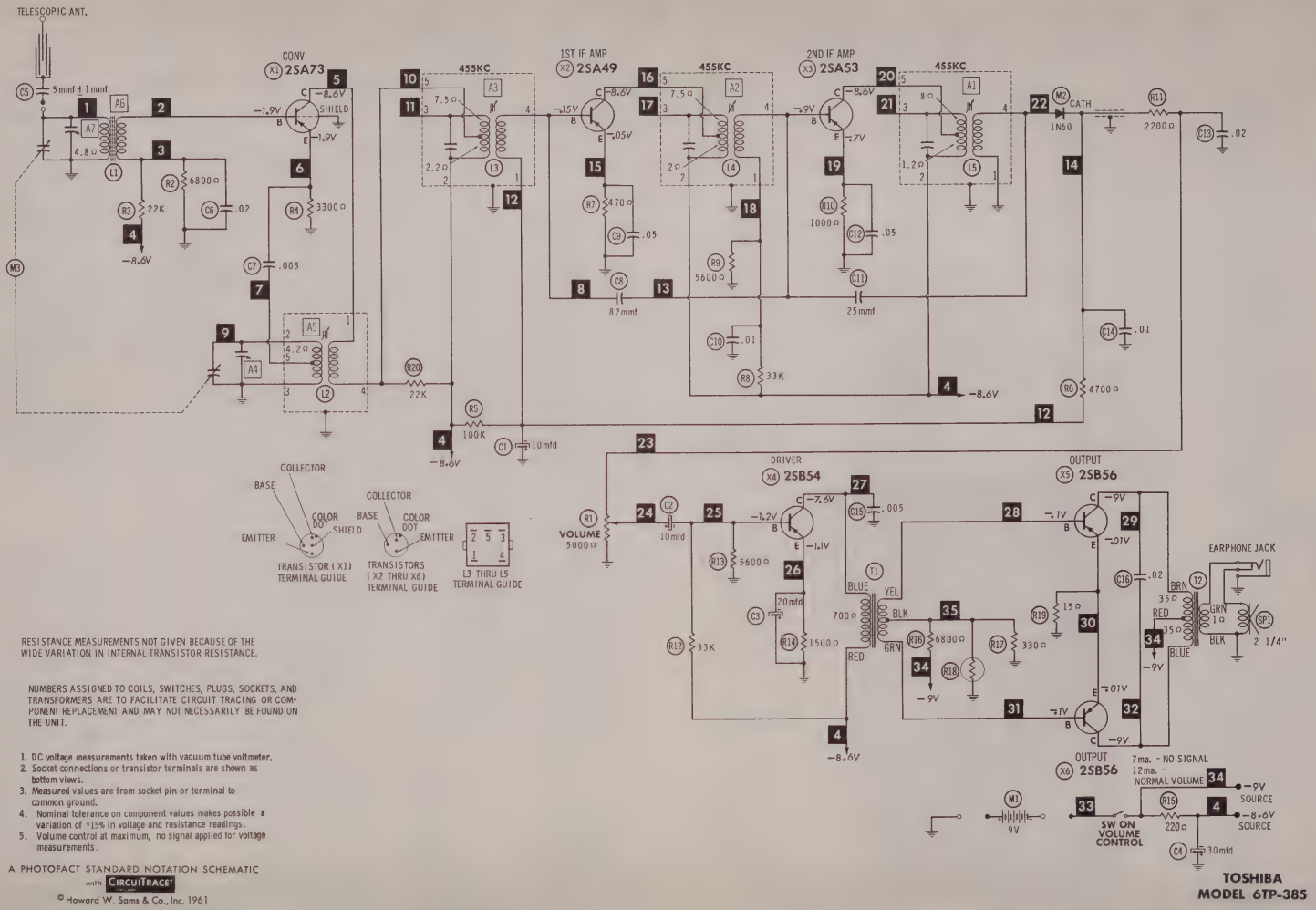

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

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TOSHIBA MODEL 6TP-385

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SA73	Converter	2N412	2N486	PNP
X2	2SA49	1st IF Amplifier	2N410	2N483	PNP
X3	2SA53	2nd IF Amplifier	2N410	2N483	PNP
X4	2SB54	Driver	2N406	2N362	PNP
X5	2SB56	Output	2N408	2N632	PNP
X6	2SB56	Output	2N408	2N632	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	3		PTT6	NLW10-15	TT3X10	MLV10-3	TE-1053	
C2	10	3		PTT6	NLW10-15	TT3X10	MLV10-3	TE-1053	
C3	20	3		PTT8	NLW20-6	TT3X25	MLV20-12	TE-1054	
C4	30	10		PTT43	NLW30-15	TT15X30	MLV35-15	TE-1132	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	5 ± 1mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C6	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C7	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	82		1468-000082	TCZ-82	5W5Q82	CM-19B-820M	CNO-482	IFM-482
C9	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C10	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C11	25		1468-000025	TCZ-25	5W5Q25	CM-19B-820M	MC220	IFM-425
C12	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C13	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C14	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C16	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4		B16-214				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	6800Ω				R12	33K			
R3	22K				R13	5600Ω			
R4	3300Ω				R14	1500Ω			
R5	100K				R15	220Ω			
R6	4700Ω				R16	6800Ω			
R7	470Ω				R17	330Ω			
R8	33K				R18	Temp. Comp.			
R9	5600Ω				R19	15Ω			
R10	1000Ω				R20	22K			
R11	2200Ω								

PRINTED BOARD

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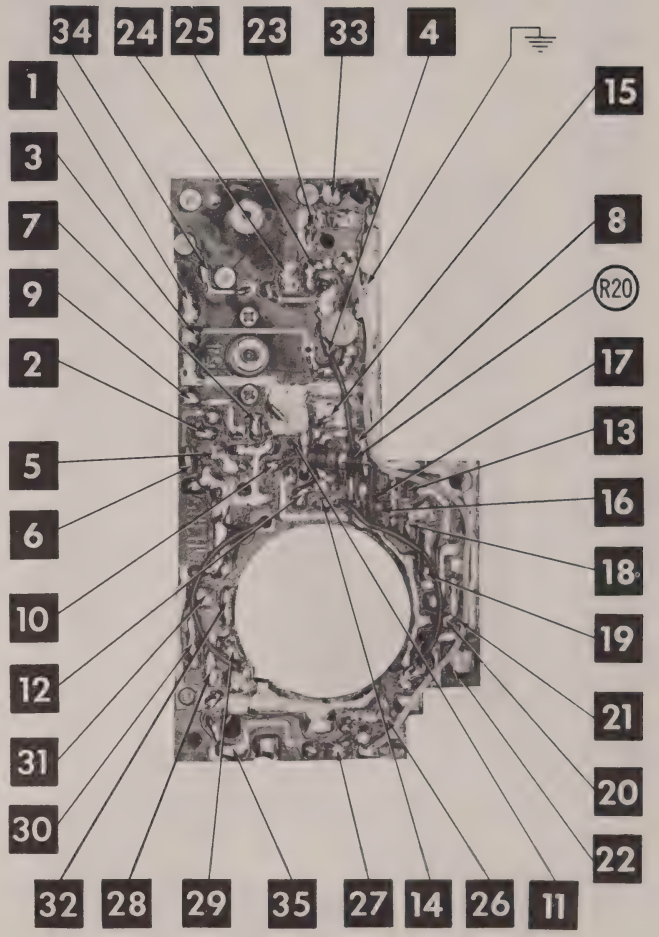


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TOSHIBA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Osc.						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1, 2	1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	300Ω CT	6-8Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	SP-2302B		

BATTERIES

ITEM No.	VOLTAGE	TOSHIBA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	006P		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TOSHIBA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1N60			1N60	Detector (Pigtail)

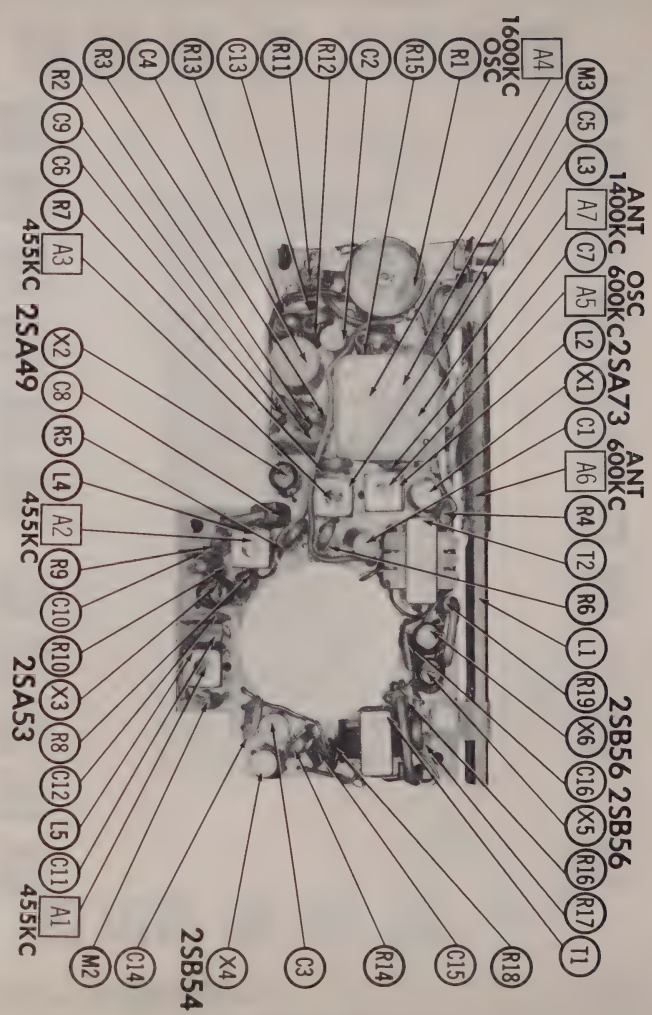
MISCELLANEOUS

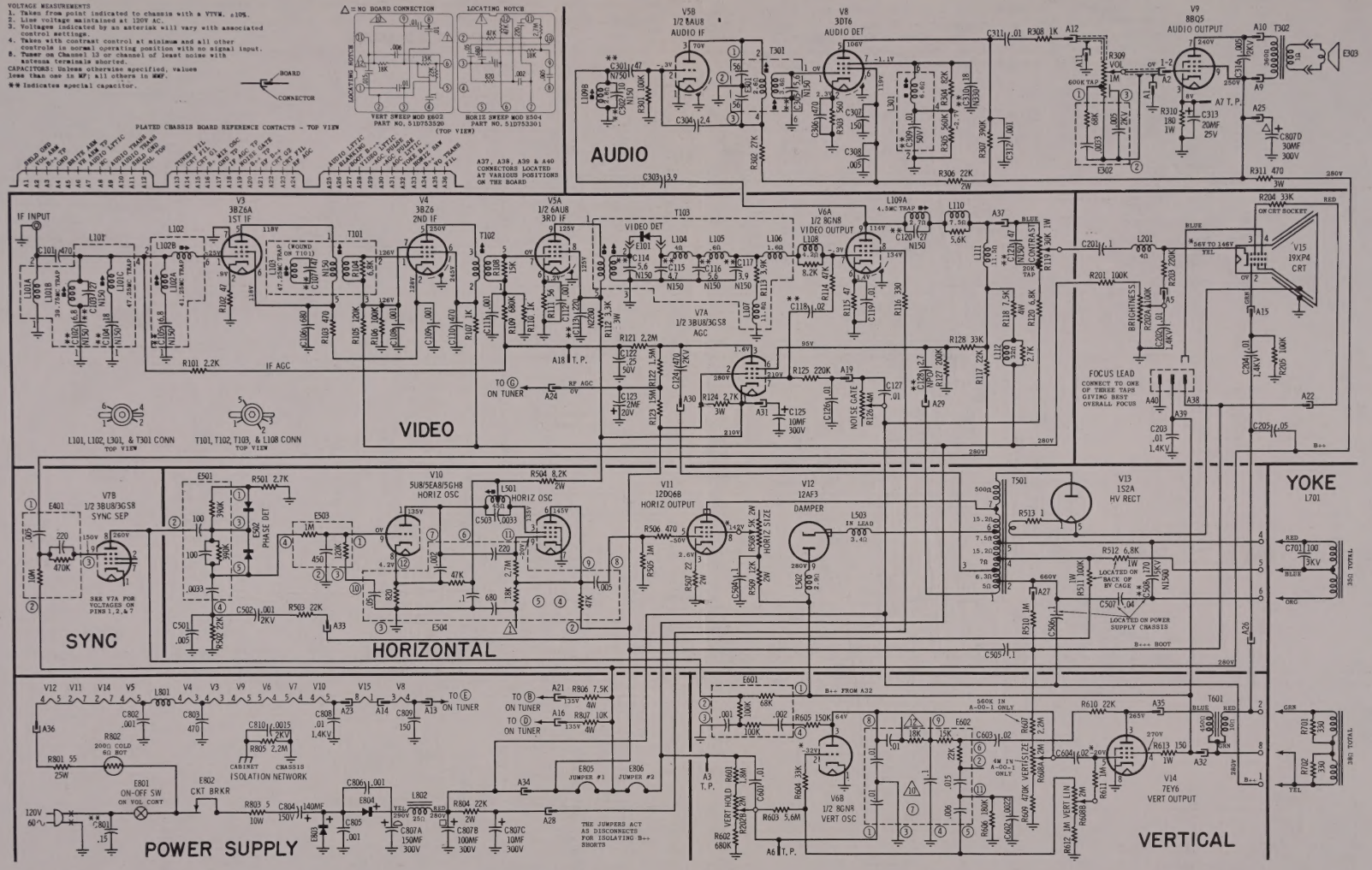
ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW




VOLTAGE MEASUREMENTS
1. Taken from point indicated to chassis with a VTVM, ±10%.
2. Line voltage maintained at 120V AC.
3. Voltages indicated by an asterisk will vary with associated control settings.
4. Taken with contrast control at minimum and all other controls in normal operating position with no signal input.
5. Tuner on Channel 13 or channel of least noise with antenna terminals shorted.
CAPACITORS: Unless otherwise specified, values less than one in MF; all others in MMF.
** Indicates special capacitor.
△ = NO BOARD CONNECTION
LOCATING NOTCH
BOARD
CONNECTOR
VERT SWEEP MOD E602 PART NO. 510T53330 (TOP VIEW)
HORIZ SWEEP MOD E504 PART NO. 510T53301 (TOP VIEW)
PLATED CHASSIS BOARD REFERENCE CONTACTS - TOP VIEW
A37, A38, A39 & A40 CONNECTORS LOCATED AT VARIOUS POSITIONS ON THE BOARD
AUDIO
VIDEO
SYNC
HORIZONTAL
POWER SUPPLY
VERTICAL
YOKE
L701
IF INPUT
V3 3B26A 1ST IF
V4 3B26 2ND IF
V5A 1/2 6AU8 3RD IF
V5B 1/2 8AU8 AUDIO IF
V6A 1/2 8GN8 VIDEO OUTPUT
V7A 1/2 3BU8/3GS8 AGC
V7B 1/2 3BU8/3GS8 SYNC SEP
V8 3DT6 AUDIO DET
V9 8BQ5 AUDIO OUTPUT
V10 5U8/5EA8/5GH8 HORIZ OSC
V11 12DQ6B HORIZ OUTPUT
V12 12AF3 DAMPER
V13 1S2A HV RECT
V14 7EY6 VERT OUTPUT
V15 19XP4 CRT
V68 1/2 8GNR VERT OSC
VIDEO DET
PHASE DET
AUDIO DISC
AUDIO TRANS
AUDIO LITIC
AGC FILTER
HORIZ LITIC
VERT LITIC
IF AGC
RF AGC
TO TUNER
ON TUNER
FOCUS LEAD
CONNECT TO ONE OF THREE TAPS GIVING BEST OVERALL FOCUS
BRIGHTNESS
CONTRAST
VOL
VERT HOLD
VERT SIZE
VERT LIN
L101, L102, L301, & T301 CONN TOP VIEW
T101, T102, T103, & L108 CONN TOP VIEW
ISOLATION NETWORK
CABINET
CHASSIS
ON-OFF SW
ON VOL CONT
CKT BRKR
E804
E805 JUMPER #1
E806 JUMPER #2
THE JUMPERS ACT AS DISCONNECTS FOR ISOLATING B+ SHORTS
B+ FROM A32
B+++ BOOT
LOCATED ON BACK OF HV CAGE
LOCATED ON POWER SUPPLY CHASSIS
4W IN A-00-1 ONLY
560K IN A-00-1 ONLY
SEE V7A FOR VOLTAGES ON PINS 1,2,&7
120V 60~
T. P.

MOTOROLA MODELS Y19P7-1, -2, -3, 19P7-1, -2, -3 (CH. TS-400, Y)

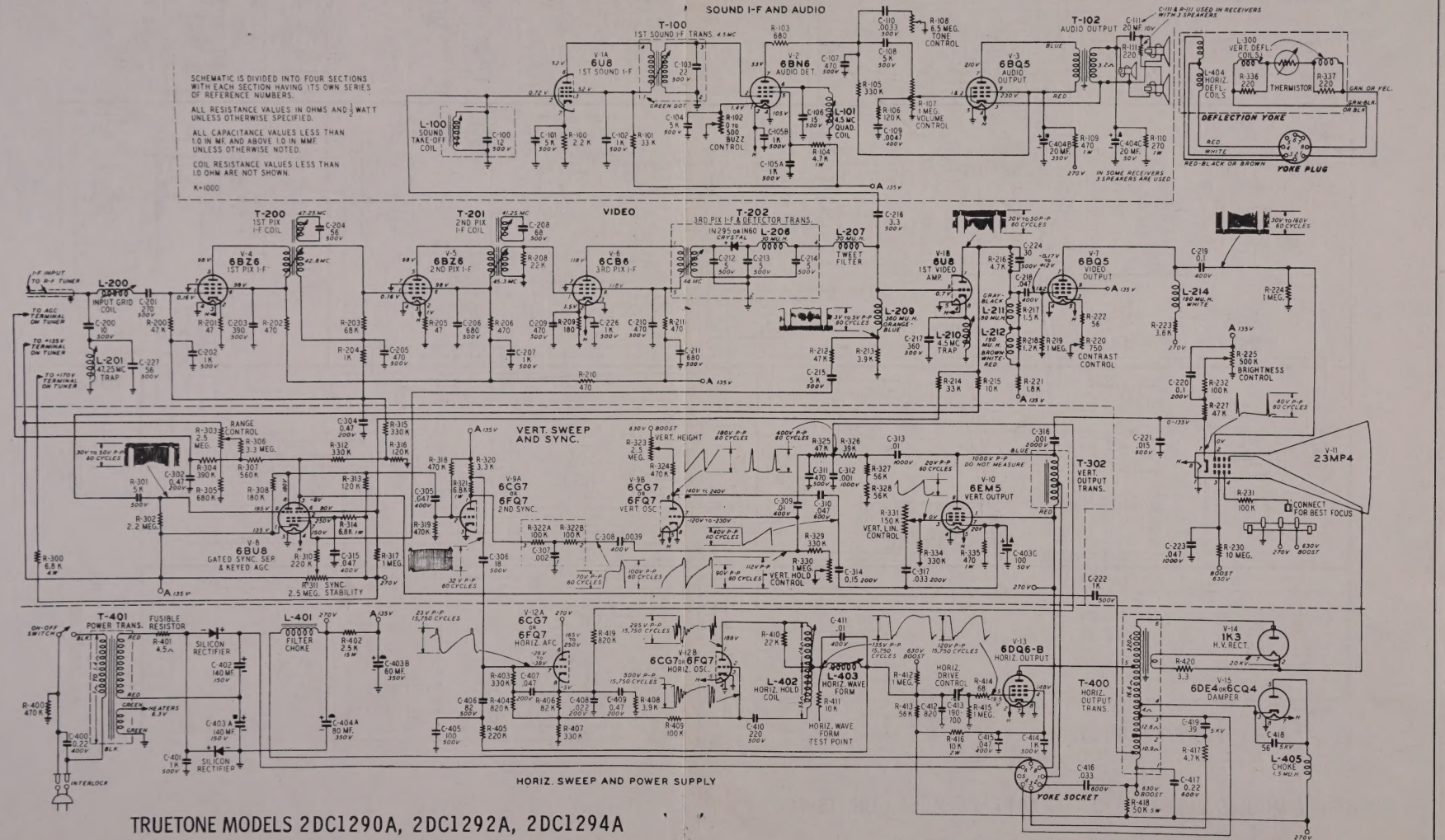
Schematic Diagram Courtesy of Motorola Inc.

OSCILLOSCOPE WAVEFORM PATTERNS

The waveforms shown on the schematic diagram are as observed on a Tektronix type 524D wide band television oscilloscope with the receiver tuned to a reasonably strong signal and a normal picture. The voltages shown on each waveform are the approximate peak to peak amplitudes. The frequency accompanying each waveform indicates the repetition rate of the waveform not the sweep rate of the oscilloscope. If the waveforms are observed on the oscilloscope with a poor high frequency response, the corners of the pulses will tend to be more rounded than those shown on the schematic diagram and the amplitude of any high frequency pulse will tend to be less.

DC SOCKET VOLTAGES

All DC socket voltages shown on the schematic are measured with a high impedance VTVM and under zero signal conditions.


SOUND I-F AND AUDIO
VIDEO
VERT. SWEEP AND SYNC.
HORIZ. SWEEP AND POWER SUPPLY
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.
ALL RESISTANCE VALUES IN OHMS AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.
COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.
K=1000
T-100 1ST SOUND I-F TRANS. 4.5 MC
V-1A 6U8 1ST SOUND I-F
V-2 6BN6 AUDIO DET.
T-102 AUDIO OUTPUT
V-3 6BQ5 AUDIO OUTPUT
L-100 SOUND TAKE-OFF COIL
L-101 4.5 MC QUAD. COIL
R-108 6.5 MEG. TONE CONTROL
R-107 1 MEG. VOLUME CONTROL
L-300 VERT. DEFL. COILS
L-404 HORIZ. DEFL. COILS
THERMISTOR
DEFLECTION YOKE
YOKE PLUG
RED-BLACK OR BROWN
IN SOME RECEIVERS 3 SPEAKERS ARE USED
T-200 1ST PIX I-F COIL
T-201 2ND PIX I-F COIL
T-202 3RD PIX I-F & DETECTOR TRANS.
V-4 6BZ6 1ST PIX I-F
V-5 6BZ6 2ND PIX I-F
V-6 6CB6 3RD PIX I-F
L-200 INPUT GRID COIL
L-201 41.25 MC TRAP
L-206 20 MC. M.
L-207 TWEET FILTER
L-209 180 MC M. ORANGE-BLUE
L-210 4.5 MC TRAP
L-211 80 MC M.
L-212 190 MC M. BROWN-WHITE-RED
L-214 110 MC M. WHITE
V-18 6U8 1ST VIDEO AMP.
V-7 6BQ5 VIDEO OUTPUT
R-225 500 K BRIGHTNESS CONTROL
R-222 56 CONTRAST CONTROL
V-11 23MP4
CONNECT FOR BEST FOCUS
V-8 6BU8 GATED SYNC. SEP. & KEYED AGC
R-311 SYNC. 2.5 MEG. STABILITY
RANGE CONTROL
V-9A 6CG7 OR 6FQ7 2ND SYNC.
V-9B 6CG7 OR 6FQ7 VERT. OSC.
VERT. HEIGHT
VERT. HOLD CONTROL
VERT. LIN. CONTROL
V-10 6EM5 VERT. OUTPUT
T-302 VERT. OUTPUT TRANS.
T-401 POWER TRANS.
FUSIBLE RESISTOR
L-401 FILTER CHOKE
SILICON RECTIFIER
SILICON RECTIFIER
ON-OFF SWITCH
INTERLOCK
HEATERS 6.3 V
V-12A 6CG7 OR 6FQ7 HORIZ. AFC
V-12B 6CG7 OR 6FQ7 HORIZ. OSC.
L-402 HORIZ. HOLD COIL
L-403 HORIZ. WAVE FORM
HORIZ. WAVE FORM TEST POINT
V-13 6DQ6-B HORIZ. OUTPUT
HORIZ. DRIVE CONTROL
T-400 HORIZ. OUTPUT TRANS.
V-14 1K3 H.V. RECT.
V-15 6DE4 OR 6CQ4 DAMPER
L-405 CHOKE
YOKE SOCKET

TRUETONE MODELS 2DC1290A, 2DC1292A, 2DC1294A

Schematic Diagram Courtesy of Western Auto Supply Company

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forms are observed on the oscilloscope with a poor high frequency response, the corners of the pulses will tend to be more rounded than those shown on the schematic diagram and the amplitude of any high frequency pulse will tend to be less.

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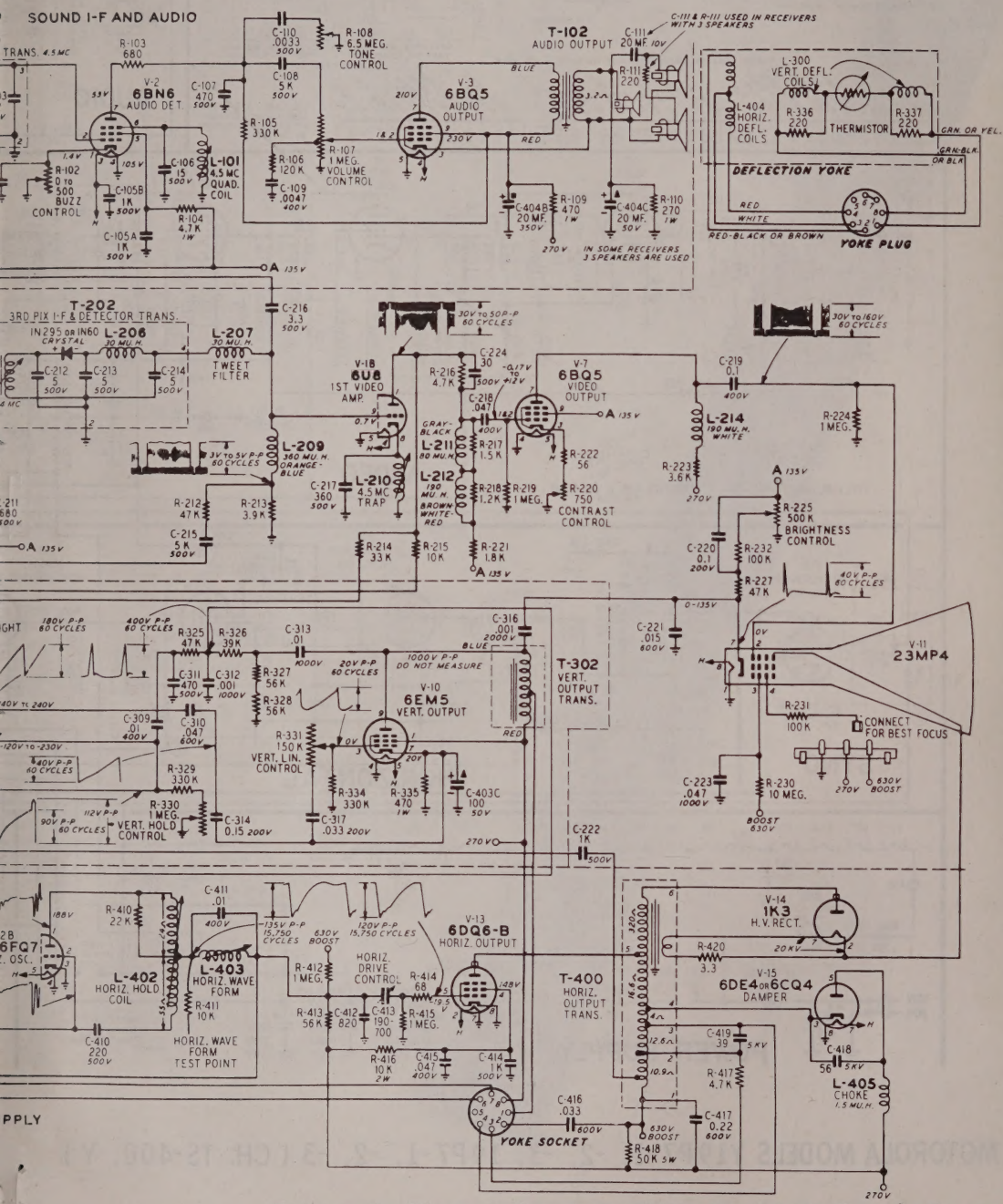

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